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THE

PREVENTION AND CURE

OF

DISEASE:

A PRACTICAL TREATISE

ON THE

NURSING AND HOME TREATMENT

OF THE SICK.

CONTAINING

Instructions on Prolonging Life.
Rules for Avoiding Contagious Diseases.
The Principles of Ventilation and Disinfection.
The Prevention of Decrepitude.
How to have Healthy Homes.
How to Prevent Special and Common Diseases.
How to Nurse Sick Children.
Directions for Arranging a Sick-room.
Receipts for the Sick-table.
How to Distinguish Diseases.
Useful Facts in Anatomy and Physiology.
The Medicinal Properties of Common Substances.
American Plants and their Medical Virtues.
The Domestic Treatment of Diseases.
Accidents and Injuries, and How to Treat them. Etc. etc. etc.

BY

GEO. H. NAPHEYS, A.M., M.D.,

One of the Editors of the "Half-Yearly Compendium of Medical Science;" of the "Physician's Annual;" late Chief of Medical Clinic of Jefferson Medical College; Member of the Philadelphia County Medical Society; Corresponding Member of the Gynæcological Society of Boston; Author of "Modern Therapeutics;" "The Physical Life of Woman;" "Letters from Europe," etc. etc.

Χωρὶς ὑγιείας ἀβίος βίος.—*Ariphron.*

"Without health, life is not life."

WITH NUMEROUS FULL-PAGE ILLUSTRATIONS.

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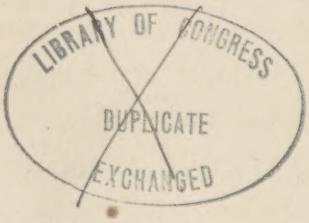

PREFACE.

A somewhat extended intercourse with the profession and with the general public has led the author of the present work to believe that there is a large body of facts in medical science which both would gladly see presented in a popular form.

The directions of the physician are frequently not carried out through want of intelligence, and he often suffers in his own reputation through the ignorance of those he leaves in charge of his patients. The public are willing and anxious to learn what the physician would be glad to have them know, but neither they, nor, it would appear, those medical writers who have sought to instruct them, have distinguished between what they can and ought to learn, and those dry and abstruse parts of science which will probably repel and certainly not benefit them. In the present volume the author has attempted to avoid this mistake.

The care of health, the rules for skilful nursing, the *prevention* of disease, and its treatment *by simple methods*, are his chief themes. No one, it matters not what his views may be,

can well hold either that these topics are unimportant, or that the public are already sufficiently acquainted with them.

If some members of the profession think that here and there the author has attempted to instruct the non-medical public in points on which physicians alone should have an opinion, or if some unprofessional readers are disappointed that he has not gone more profoundly into the depths and mysteries of medical matters, he asks both to remember that in writing on popular science for an extended public, special and circumscribed lines of instruction, as well as narrow and limited views, must alike be discarded.

Considerations of a similar nature have led to the omission, in the present volume, of all medical topics which may not be freely discussed in the family circle. In two previous works the author has given to the public what information seemed to him proper and useful on the hygiene and diseases peculiar to the sexes, and to these volumes those are referred who require such instruction.

Rue de Fleurus, Paris, 1871.

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INTRODUCTORY.

THE SCOPE AND PURPOSE OF THE PRESENT WORK.

The value of popular medicine—The plan of the book—The first part—The second part—The third part—What this book is not.

THERE is a hard old maxim, which, hard as it is, both history and science confirm, to the effect that "to be weak is to be miserable." Looking at the great problem of achieving success in life, which interests us all so much, we see how true this is. The weak are pushed to the wall, and especially those who are weak through prolonged ill-health. They cannot cope with their competitors blessed with strong nerves and constitutions of iron. They lose too much time, their attention is distracted by their own ailments, they cannot work enough, and they encounter sooner the inevitable and final rival who is certain at last to overturn all human plans—Death.

These three foes to success—Weakness, Sickness, Death—the science of medicine takes upon itself to encounter. It teaches the means of exchanging debility for strength, of avoiding, caring for, and curing

diseases, and of postponing to the utmost day the unavoidable termination of our career. These are, indeed, lofty and beneficent aims. But it does not stop even here. Looking to the future as well as the present, it seeks to erase from the experience of mankind all preventable diseases; to protect the generations yet unborn from those ills which we, their sires, must endure; to impart a physical vigor and a mental constitution which will elevate the race above the liability to disease, and rescue it from the temptations to disobey the laws of life; and thus, joining hands with the mighty powers of religion and morality, to render man better and purer, as well as stronger and longer-lived.

THE VALUE OF POPULAR MEDICINE.

With these aims in view, at once so noble and so practical, of such interest to the individual as well as the race, it seems strange that medical science in its broad sense is not a more favorite study with the intelligent public. Certainly in this day of popularizing science, there is no science so deserving of popularity as this.

Perhaps the reason is that the people at large imagine that the chief concern of medicine is the treatment of disease, a matter not easily understood nor pleasant to dwell upon; perhaps there has been no work yet written which is suited to give other and more correct views. Domestic medicine books, such as they are, we have in abundance, but what are they? Dry compilations from the text-books of medical

students, crammed with useless statements, disfigured with technical terms, written hastily by superficial men on illogical plans, or on no plan at all. No one has read them, no one can read them.

Now, there are in medical science a large number of useful facts, applicable to every day of our lives, which every man and woman ought to know, ignorance of which will bring anxiety and suffering to themselves, and prevent them from doing their duty to their friends and relatives. They cannot fulfil their obligations as Christians and neighbors without this knowledge. Unless the Good Samaritan had known enough to wash the bleeding wounds with the astringent wine of Palestine, to check the flow of blood, and then to apply rags moistened with olive oil—very good treatment, by the by, and not far from what we do to-day—his services might have been of no avail, and the poor traveller might have perished by the wayside, in spite of the kindest sympathy on the part of his unknown friend. The tenderest affection, the most devoted love, the most unreserved self-sacrifice, amount to nothing in sickness, are in nine cases out of ten misplaced and harmful, without this knowledge.

These essential, useful facts it is the purpose of this work to give, presenting them in some natural connection, and in plain terms. They require no preliminary study of anatomy, physiology, or pharmacy; they shall be of such character as are needed in every-day life; and they shall be carefully chosen with regard to their accuracy. This much we promise; and if we could clothe these facts in the graceful drapery of an

attractive style, and invite to their perusal even the indifferent by the charms of language, we would gladly call to our aid this potent ally. But to this we lay no claim, and here, as in our volumes on a related subject, we shall aim at nothing but to impart useful information in perspicuous words.

PLAN OF THE BOOK.

The plan which we shall adopt is that which has appeared to us the most effective to allow our statements to be easily remembered. We shall present it in outline here, and it is well to bear it in mind in reading the following pages.

Some may deem it a severe and cold maxim to say that every man's first and most imperative duty is to himself; others will suggest that there is no need of giving such advice, for poor human nature acts only too willingly in accord with it already. Both objectors are in error. Even in the moral world, the great dramatist places in the front rank of paternal admonitions: "first, to thine ownself be true;" and the physician has to see and regret only too often how an ignorance or a neglect of the duties men owe themselves, such as the constant exercise of self-control in passions and appetites, the observance of the regimen of health, and the avoidance of exposure, leads to the saddest results for themselves and their families.

THE FIRST PART.

Therefore, in the FIRST PART of this work we shall speak of the hygienic rules which should govern the individual when in health, and impart to him the invaluable information how to escape contagious diseases, and those which are inseparable from some occupations and inherent in some constitutions. In other words, it will be a treatise on the *principles* of hygiene. We have not the space to enter into the details of this important science, but we shall explain the general laws which must be observed in order to secure health and make our chances the best for long life. This portion, in other words, teaches *what a person must do for himself.*

THE SECOND PART.

In the SECOND PART will be taken up the care of those who are already ill. We shall there explain the proper way to *nurse* them, to prepare their food, to minister to their many wants, and to provide for them whatever comforts the pain-racked couch of sickness can command. Every physician well knows that instruction on these points is sadly needed; that thousands die every year, not from lack of nursing, but from officious and ill-advised nursing, through the unintelligent though well-meant attentions of their families—nursed to death, in fact. The skilful, quiet, well-trained nurse is the physician's ablest assistant; but such assistants are rare indeed.

Yet so important is it to know how to care for the sick, that there is no man and no woman but in some period of life he or she is called upon to do it. And upon its being well done depend very often the lives most near and dear to them—their parents, their children, their best friends. For it is precisely these who demand from us this painful duty. Who, then, can be so careless of these dearest ties, who so forgetful of this inevitable emergency, as to make no preparations for it, to seek no instructions about it? Assuredly, if there are such, the day will come when, in weeds of mourning, they will bitterly reproach themselves for the culpable oversight.

THE THIRD PART.

The THIRD PART of our work shall be engaged with the means of *curing* disease. There will be general directions how to distinguish the complaints most frequent in this country, but we shall altogether omit the hundreds of rare and obscure diseases which make up the bulk of medical works, and can neither be recognized nor treated by any but the skilled practitioner. Sudden accidents and the proper help in the emergencies of life shall receive especial attention.

The remedies to be employed shall occupy us very particularly, for these are the very "tools of the trade," and upon their right management more depends than on aught else. We shall lay especial stress on the medicinal properties—and they are many—of such

articles as are always at hand in every house for other purposes, such as salt, mustard, and the like.

The art of the apothecary is a difficult and a dangerous one. He traffics in subtle poisons, and deals out uncertain and unfamiliar substances. No one uninitiated into the mysteries of his craft, dare with impunity meddle with the vials on his shelves. It were the height of imprudence to recommend it. Yet these vials contain some of the most potent weapons against disease that the arsenal of science can furnish.

To obviate the dilemma, we shall follow out a suggestion not indeed original with us, but hitherto not carried out in practice, and which, we think, overcomes the difficulty in a very great measure. What it is we shall explain in the proper place.

By this plan for our book, we believe we can present in a small compass most of what is really worth knowing about practical medicine for the public. We will thus teach the reader, first, how to take care of himself; secondly, how to take care of others, his parents, his children, or his friends; and, lastly, inform him how to recognize common diseases, and enlighten him as to the many resources which are at his hand in sudden emergencies, and when no physician can be summoned.

WHAT THIS BOOK IS NOT.

We shall now add what he need *not* expect from this book. It will *not* make him a physician, still less will it make "every man *his own* doctor." The art

and science of medicine requires for its mastery years of patient, assiduous, unwearying toil; years spent by the bedside, over the dying, among the dead; it demands a much more than superficial familiarity with many other sciences, with chemistry, physiology, pharmacy, anatomy, and botany. It requires a prolonged education of the senses of sight, hearing, and touch. It asks a practised adroitness in the management of delicate and complicated instruments. It presupposes wide general education, and an acquaintance with more than one language, living and dead. When all this is given, it is not all. Other long years of observation and experience must pass before the healer is qualified for his high mission.

How absurd, how unprincipled, therefore, the author who in the compass of one volume professes to include all that is requisite for a mastery of this science! Such is *not* the scope or purpose of this work. More humble in aim, we hope it will prove more really acceptable and profitable to the reader.

PART I.

THE PRINCIPLES OF HYGIENE.

CHAPTER I.

ON HEALTH AND LONG LIFE.

How long we ought to live—Instances of longevity—Conditions of life and health—Influence of climate; of race; of sex; of hereditary tendency; of marriage and single life; of trades, professions, and social standing—Physical signs of a long life.

THERE are two motives which should impel us to seek an acquaintance with the laws that govern our physical life: the first is, that by respecting these laws we may *preserve our health;* the second, that we may *prolong our life.* At the first glance, some may think that these are almost identical. In many cases they are; but in many others the precepts which we must obey in order to prolong life are in addition to those which are requisite to avoid sickness.

It is not too much to say that health is at the command of most people—so much and so entirely in their power, that if they are sick, it is their fault, not their misfortune. But with life it is different. A thousand accidents may await us; a hundred mischances may

occur to sever the slender thread by which we cling to existence. Against all these we cannot provide, but we can diminish the natural causes of mortality, lessen the risks of accident, and in a double sense live *well* while we live.

Our purpose is to collect into small compass, and to present as perspicuously as possible, all the advice which seems most essential to obtaining these desirable ends. We commence with the inquiry—

HOW LONG OUGHT WE TO LIVE?

Or, to put the question differently, What is the natural length of human life? Let us suppose that man were placed in such a position that neither accident nor exposure cut short his days, but permitted his corporeal machine to wear itself out, as some well-worn engine, by dint of long use: How long would that be?

We can arrive at an answer in several ways. Simplest of all is, to make note of the ages of old people who have died of the only disease which we should, or should desire, to die of—old age. This we shall find to vary somewhat according to race and place; but, on an average, to be upwards of fourscore years, perhaps from eighty to one hundred years.

We can also make this calculation in the lower animals; when protected from fatalities, death by decrepitude takes place at a period from four to five times as great as elapses from birth to the attainment of growth. For example, a horse attains its full growth in about five years; its natural term of life is a little

over twenty years. This law is true of most of the brute creation. If it also holds good when applied to man, then, were it not for accidents, "medicable wounds," and our own folly and ignorance, we should all live to the age of a hundred years.

It will be seen that the results of these two methods of calculation are not far apart; so we can safely assume, that any man with a naturally good constitution, can, if he wishes, barring accidents, reach an age over eighty. We may even go further than this. Instances are not rare, where persons with enfeebled health, arising either from a weak constitution or from exposure and excesses, have, by a resolute observance of the precepts of hygiene, attained an uncommon age. This gives us the cheerful assurance that it is in the power of every one to "go and do likewise!"

But it is not enough simply to live—to exist.

> "What is a man,
> If the chief good and market of his time
> Be but to sleep and feed? a beast, no more."

We must be capable of work, and at work; and to be thus, demands *health*, vigorous, uniform health. That by making the mere act of living the sole care of life, we may attain longevity, is a small satisfaction. While living, we must, in military phrase, be "fit for duty."

INSTANCES OF LONGEVITY.

We give a few of the most remarkable instances of longevity on record.

Probably the man who attained the greatest age since the days of the patriarchs, of whom we have any authentic account, was Henry Jenkins, of Yorkshire, England. He died in 1670, at the age of 169 years. He remembered the battle of Floddenfield, in 1513. At that time he was twelve years old, and was engaged to pick up the arrows shot by the archers. The records of the courts proved that, 140 years before his death, he was a witness on a trial, and had an oath administered to him. He passed his life in out-door employments, in moderate labor and fishing. So well did he retain his vigor, that when above the age of a hundred years, he could swim across rapid rivers. His epitaph is still seen in Bolton church, Yorkshire.

Thomas Parr, another Englishman, is a still more famous example, though his life was shorter. He lived to be 152 years and nine months old, and died in 1635. He also was a farm-laborer, accustomed to out-door work and plain fare. He continued his daily labor, even threshing and reaping, until past 130 years of age. He would probably have lived many years longer, had not the king, hearing the fame of his great age, had him brought to London, where he was fed on such unusually dainty fare, that he died of a surfeit. The famous physician, Dr. Harvey, examined his body after death, and found no other cause of death in it.

In citing instances of longevity, we cannot omit to

mention Luigi Cornaro, a nobleman of Venice, who died at the age of 100 years, in 1566. What is most interesting in his case is that he was born with a feeble constitution, which he further debilitated by a somewhat dissipated and irregular life, until he was thirty-five. His physicians then informed him that he had but a year or two to live. Alarmed at this, he changed completely his habits, and became the most temperate and regular of men. His plan was literally "to be temperate in all things." He scrupulously confined himself to twelve ounces of food a day, and fourteen ounces of wine; he avoided exposure to great heat or cold; he shunned all strong emotions, and cultivated cheerfulness; he retired early, and rose betimes; and he interested himself in light and genial occupations. Undoubtedly his great age was attained directly by these precautions.

In the present century, the most extraordinary, well-attested case of longevity is to be found in our own country. This was Joseph Crele, who died January 27, 1866, in Caledonia, Wisconsin. He was born of French parents, in what is now Detroit, in the year 1725, as the record of his baptism in the Catholic church in that city establishes beyond a doubt. He lived, therefore, to the age of one hundred and forty-one years. He was of medium height, spare in flesh, and of sinewy strength. Until within two years of his death, he could walk several miles without fatigue, and chopped all the wood needed for the family use. His life had been passed in the open air, in hunting, fishing, and trapping. He was temperate, except that

he was an inveterate smoker. Like many others who have attained great age, he married a young woman, when far advanced in life, and had a daughter when he was sixty-nine years of age. The only weakness of mind he ever betrayed was in the last year or two of his life, when he occasionally remarked, with an air of sadness, "Death has forgotten me." But he would soon brighten up, and add, "But God has not."

CONDITIONS OF LIFE AND HEALTH.

Now, our chances for life and health depend upon two separate factors, each of which we propose to examine. First, there are certain conditions of our life which are wholly or largely beyond our control, and are peculiar to ourselves individually. Such are the race to which we belong, hereditary tendency to certain diseases, our sex, avocation, married or single state, the climate we are exposed to, and the period of our lives. Each of these has its own dangers, its own advantages, and its own special hygienic rules.

Secondly, there are other conditions which are common to all human beings, and materially influence both health and length of days. These are the foods we eat, the beverages we drink, the clothes we wear, the houses we live in, the exercise we take, and the sleep we indulge in. There is much important matter which we have to bring forward on each of these points also.

CONCERNING CLIMATE.

It is well ascertained that the colder parts of the north temperate zone are the most favorable to longevity. In Europe, Russia, Sweden, Denmark, and Scotland, in this country, New England and the Northwest, can produce the most numerous examples of long life. The extreme cold of the frigid zones, and the sultry heats of the tropics, are alike unfriendly to great age. The country is more favorable than the city, a dry and well-aired locality than one marshy or confined, the hill-tops and plateaux than the valleys and low plains.

INFLUENCE OF RACE.

The influence of *race* is equally evident. There is no doubt that the white or Caucasian race surpasses all others in longevity. Few instances of either Indians or Negroes who have reached a very advanced age can be found. There is, we well know, a popular belief to the contrary, because comparatively few of these races know their own age, and often give themselves out as very much older than they really are. Probably of all the races, the black is that which is the shortest-lived. The mulatto, a cross between it and the white race, is, apparently, even less fitted to combat the attacks of time.

INFLUENCE OF SEX.

The *sex* considerably affects the probability of life. In spite of their feebler constitutions, their numerous diseases, and their exposure to the risks of maternity, it is the women who live the longest. Any one who counts up his acquaintances, will be pretty sure to find that the number of old ladies above seventy is greater than that of the other sex. Nevertheless, the most astonishing instances of longevity on record are exclusively of males. Probably the true reason of the larger number of elderly women is that, as a sex, they are less exposed to physical danger and fatigue, to harassing mental strain, to irregular hours, to habits of dissipation and excess, and to the perils which attend the avocations of the soldier, the sailor, and the explorer.

HEREDITARY TENDENCY.

Hereditary tendency goes very far in determining the length of our lives. We have elsewhere drawn attention to this, and shown how old age is in many instances a family heirloom. This does not necessarily mean that a sound constitution is transmitted from father to son. On the contrary, it is a suggestive fact, that persons of uncommonly feeble physical powers survive the members of their family who in earlier life were the more vigorous. Where the parents and grandparents have attained a green old age, the presumption in favor of long life is very strong.

It is so well known that longevity is an heirloom in

families, that the life-insurance companies inquire with great minuteness into this point. Accidents and acute diseases aside, each living individual will probably live to the average age of his ancestors, and not beyond it. One of the descendants of Thomas Parr (whom we have mentioned above), by name Michael Michaelstone, lived to 127 years.

MARRIAGE OR CELIBACY.

With regard to this, the remark is made by the celebrated Dr. Hufeland, that all those who have attained extraordinary old age have not only been married men, but, when already quite old, have married for the second or third time. The celibate life, in either man or woman, is not the longest life. Various reasons explain this, the most obvious of which are the lack of attendance in illness, the pressure of unsatisfied longings, the greater temptation to irregularities and to lowness of spirits. Whatever may be the cause, the fact is so indisputable, that the statistician Casper has estimated that at the age of seventy years there are more than twice as many married persons living as single, in proportion to the number of each in the population. We are justified, then, in placing marriage as one of the essential elements of longevity.

OCCUPATION AND SOCIAL POSITION.

The *trade or profession and social standing* of persons influence very directly their chances both for

health and long life. Indeed, those who have given time to the investigation of the causes of longevity have thought it important to devote to these their particular consideration. We have no wish to burden our readers with the long tables which their pages contain, and will rather give in a few lines what the results of such studies have been.

The simplest division of society is into the rich and the poor. We are often told of the many good things which cannot be purchased by gold; and often long life is included in the list. But this is not altogether correct. On the contrary, we find in all parts of the world that the wealthy, as a class, are longer-lived than the indigent. The reasons are obvious. They can protect themselves more completely against the weather, they can eat better food, they can guard more sedulously all the avenues of disease, and, when ill, they can command more skilful medical advice. This is so true, that in the registration returns of Boston, where the statistics are very carefully kept, the "gentlemen"—that is, in our American mode of speaking, those who live on their incomes and have no regular business—are the longest-lived of any of the classes. A French writer had the idea of collecting the names of all the princes and sovereigns of Europe, and all the nobility of England and France, and compared their mortality with that of an equal number of persons from the laboring classes. To his astonishment, he found that *two* of the latter died to *one* of the former!

Of those who do "work for their living," to use a

homely but striking phrase, those attain the greatest age who belong to the "learned professions," the ministry, the law, and medicine, and in the order in which we have named them. It may surprise some to see the physicians appear last. They who are the instructors of others, do they neglect their own counsels? and,

> "As some ungracious pastors do,
> Show us the steep and thorny way to heaven,
> And reck not their own read?"

No; but the nature of their avocation destroys all habits of regularity in sleep and meals, exposes them to contagious maladies, and allows no time for that rest of body and mind so essential to preserve the powers.

The clergy have, in all these respects, the advantage over them. They attain an average age of about fifty-seven or eight years in this country; lawyers about fifty-five, and doctors but fifty-two or three.

Farmers, by which we do not mean farm-laborers, are, in healthy districts, quite equal in longevity to professional men. In their case, very much depends on the climate and soil of their localities. On the northern plateaux of our country they attain an average age of sixty years; but in the southern States, where they are exposed to dampness and swamp-poison, they appear less favorably on the record.

The various kinds of mechanical trades are all less healthful than the foregoing. Certain occupations act directly upon the health. The stonecutter, the cutler, the foundryman, and the factory operative, all pass

their hours of labor in an atmosphere loaded with an irritating though invisible dust, which accumulates in their lungs, and in time interferes with the general health. Again, printers, tailors, shoemakers, and similar laborers, have little opportunity to take exercise and enjoy fresh air, and are obliged to remain in cramped postures for much of their time. Sewing-machine operators are liable to some special diseases from the motion of the treddles, and some branches of manufacture force the employees to work amid the fumes of poisonous metals, as lead, phosphorus, and arsenic. That their avocations must shorten their days is too plain to need any emphasis.

We shall now state briefly what are the

SIGNS OF A LONG LIFE.

First is the hereditary right to one, because the parents and grandparents enjoyed the privilege.

A sound constitution; not necessarily great strength, but freedom from tendency to any special disease.

A faculty of recovering rapidly from injuries and illness, and a power of endurance of fatigue and privation.

A mental character not readily depressed or exalted, not excitable, and generally hopeful, courageous, and calm, the passions and appetites well under control.

A social position which allows every care to be given to health, and lifts one above the distress and anxiety of struggling for daily bread.

A perfect balance of the different organs and functions of the body.

Habits of activity, regularity, and moderation.

To be happily married, and surrounded with a promising family.

These are the requisites for him who has a right to look for length of days. Let them be carefully studied, and those that can be acquired, let them be sought after. They mean not long life only; they bring with them health and peace.

But we do not intend to leave the reader in these generalities. They are too vague for him, perhaps, and we shall accompany him, therefore, into the study of the minutiæ of these directions, and, line upon line, precept upon precept, indicate precisely what he is to do and not do, in the various relations of his life.

Our plan shall be to commence with the bodily functions of the individual, his food and drink; then pass to his externals, his clothes, his toilet, and his house; next, to the use he makes of his powers, intellectual and physical; and, finally, to the rest he should take, whether as recreation or as sleep. We shall then specify certain precautions he should observe to guard himself against epidemic diseases, and contagion of various kinds, to which he may be exposed. In other words, before we begin to speak of the methods of healing the disorders to which the race is liable, we shall recommend the ounce of prevention which is ever worth the pound of cure.

CHAPTER II.

ON FOOD.

SECTION I. ANIMAL FOOD. Milk—Butter—Eggs—Beef and veal—Mutton and lamb—Pork—Salted meats—Fat and lean meat—Fowls—Game—Fish—Shell-fish—Diseased meats and their detection—Poisonous flesh—Diseased and poisonous milk—Poisonous honey.

SECTION II. VEGETABLE FOOD. Starch—Sugar—Bread—Vegetables—Poisonous confectionery.

SECTION III. SPICES AND CONDIMENTS. Salt—Black pepper—Red pepper—Mustard—Vinegar.

Quantity of Food—What we shall eat—Hours of meals—Cookery—Adulterations of food.

A PROPER classification of the different varieties of food made use of by man has yet to be proposed. Of the many which have been offered, not one is acceptable to both physiologists and chemists. We shall attempt none, but proceed, without discussing theoretical views of any kind, to explain the relative nutritive powers, the methods of preparation, and the dangers attending the various articles of diet, under the simple division of *animal food*, *vegetable food*, and *spices* and *condiments*.

I. ANIMAL FOOD.

This embraces all aliments which are derived from the animal kingdom. Some hygienists reject them

altogether, with one or two exceptions, on the ground that man is an "herbivorous" or else a "frugivorous" animal, and will live longer and enjoy better health, the less he has to do with meats. This is a vagary founded on anatomical fancies, which neither sound science nor experiment confirms, and is not likely to attain wide acceptation. It is indeed possible that in individual cases, and under unusual circumstances, persons are stronger and healthier without a flesh diet, but, as a general rule, this has no application.

MILK.

This is the earliest and for many months the exclusive food of our species. It combines in itself all the elements necessary to sustain life, and is by most infants and adults well liked and readily digested. Some persons, however, suffer from colicky pains after taking it in quantity, while others do not think it palatable. Both will find their objections to it removed by boiling it, and using it warm or cold, and sweetened if desired.

It is quite fattening, and the use of it should be persisted in after the age of childhood. Dr. Edward Smith, of London, an eminent authority, attributes much of the scrofula and consumption which occur in children about the age of twelve and fifteen to the general cessation of the use of milk at that period.

Whenever the system is much exhausted, and there is a growing tendency to emaciation, a milk diet can be resorted to with every prospect of success. It

should be taken, *not* iced, as is the fashion of the day, but as fresh from the cow as possible, and slightly *warmed.* In this condition it is more digestible. A milk diet means the consumption of three or four pints daily. Persons of a spare habit would do well to take at least a pint daily, preferably at the morning or mid-day meal.

Cow's milk is almost the only variety used in this country. That of the Alderney cow is richest, and therefore most desirable for adult use. In our cities, very much of the milk is of inferior quality, either drawn from "slop-fed," unhealthy cows, or mixed with stale milk, or adulterated with water. From this cause results in a large measure the excessive and alarming infant mortality.

Skim-milk is deprived of its butter and richer ingredients, and is therefore less nutritive, but has excellent medicinal effects in certain diseases of the kidney. Buttermilk, long regarded as quite undesirable for food, has recently been highly extolled as an aliment for infants, at once healthful and palatable. It has also been used with considerable success as an article of diet in obstinate cases of dysentery.

BUTTER

Contains the fatty elements of milk. It is used with great propriety with bread and other starchy substances, as it not only renders them more palatable, but also more digestible, and more nourishing. Its liberal use is especially to be recommended to those

who are too spare in flesh, and those with a tendency to scrofula and consumption.

EGGS

Provide in their contents whatever is requisite to form and nourish the unborn animal. The yelk differs from the white chiefly in containing less albumen and a quantity of oil.

They are found by most persons to be most digestible when boiled just sufficiently to harden the white, but not the yelk. Thus prepared, they constitute an admirably condensed article of diet. Persons of quite delicate stomachs will do well to reject the white altogether, and eat only the yelk, which is more nutritious and easy of assimilation. It is hardly necessary to add, great care should be taken to make use of those only which are perfectly fresh, as the least staleness unfits them for food.

When either raw or boiled hard, or prepared as fried or scrambled eggs, they are not so digestible as when boiled as above described.

BEEF AND VEAL.

Cattle are raised in all parts of our country for slaughter, and their flesh, when young in the form of veal, and when older as beef, forms the staple of flesh diet in the larger number of States. Beef from stall-fed steers about three years old is probably the most nutritive and finest meat in the world to the cultivated taste. It is juicy, easily digested, and

tender. It is best when roasted or broiled, and rare. The "roast beef of Old England" merits all the praise it has received from the poets. No food is comparable to it in life-sustaining and gastronomic qualities. Raw beef, pulverized and seasoned, has been found of singular efficiency in consumption, chronic diarrhœa, and the wasting diseases of children. It is by no means unpalatable.

Veal is less digestible than beef. It should only be taken at breakfast or at an early dinner, and always well done. Persons of a dyspeptic turn should not use it.

MUTTON AND LAMB.

These, especially the latter, have the reputation of being less "hearty" and more delicate than beef. They suit, especially when roasted or broiled, some dyspeptics who cannot eat other meats without sensations of discomfort. They should be cooked *slightly* rare, and, of the two, lamb is the more digestible. In fact, except in the instance of veal, the flesh of young animals is always more digestible than that of old ones of the same species.

The sheep is subject to very many diseases, especially consumption, rot, and parasites of the skin, liver, and brain, which doubtless lessen the excellence of its flesh as food. These complaints sometimes, but not always, alter the appearance of the meat after slaughtering. Sheep's livers are so often diseased, that we advise our readers to abstain from them altogether.

PORK.

Some of the most popular of our national dishes consist largely of the flesh of the hog; witness, for example, the "pork and beans" of New England, the "pork and greens" of the Middle States, the "bacon and apples" of Illinois, the "hog and hominy" of the South, the "sausage and scrapple" of Jersey, and the "ham and eggs" of everywhere. The pork-packing trade of the West is one of the most important local industries.

This immense consumption of pork continues in spite of violent opposition from various sources. The Jews, it is well known, refuse to taste the "accursed flesh;" certain hygienists insist that it produces physical degeneracy; it is said to cause fatal diseases; and to it has been attributed that terrible disease, scrofula. It is true that scrofula is derived from a Latin word (*scrofa*) which means a sow, but not because the old Romans imagined the disease arose from eating swine's flesh, but simply because one whose jaws are swollen with scrofulous swellings was supposed to resemble in this feature the pendent jowls of a hog.

We have no hesitation in saying most emphatically that the flesh of a healthy hog is just as good food as that of any other animal. It is digested with less facility than that of either cattle or sheep, and may therefore disagree with some who can eat these, but in all other respects it is quite as unobjectionable.

Although the habits of swine are so filthy, they are

a healthier animal than the sheep. Of the diseases to which they are liable, two especially interfere with their value as food. These are the measles and trichinæ. "Measly pork" can be distinguished by its milky and slightly striped appearance, and the absence of a uniform, bright, clear color. When eaten, it is supposed to favor the development of worms in the bowels. The trichina is a very minute worm which propagates with rapidity, and makes its home in the muscles. It is transferred from the hog to man by consumption of pork insufficiently cooked. The German habit of eating raw ham in sandwiches favors this transmission, and should be avoided. If pork is thoroughly well cooked, as it always should be, there is never any danger from this source. Moreover, in spite of the much that has been said about trichinæ of late years, they are found extremely rarely in the swine of this country.

In feeding hogs, the refuse and offal generally given should be supplanted by grain, pumpkins, and steamed roots. Their flesh becomes on this diet better tasted and healthier. The celebrated "Sherwood hams" owe their famous flavor to the acorns obtained from Sherwood Forest, on which they are fattened.

SALTED MEATS.

All the above varieties of flesh are preserved for use by salting and pickling. This process very materially alters their character. Salt meat is one-third less nutritious than fresh, and is likewise less

palatable and less digestible. The brine extracts many nutritive elements, some of which are essential to the maintenance of health. When persons are fed exclusively on salt meat, no matter how unrestricted the supply, they are certain to suffer, not, as is sometimes supposed, because the salt injures them, but because they are inadequately nourished, Every one is familiar with the fact that scurvy is a disease which prevails especially among sailors on long voyages, who have no fresh meat. It was common among some regiments during our late war, from the same cause, and we have seen it in families who lived too exclusively on corned beef and salt pork.

Salt meats should be boiled, as they are thus more palatable, and the fluids of the stomach act on them more promptly. In all cases, fresh meat should be taken *as often* at least as salted.

FAT AND LEAN MEAT.

The hygienist agrees with the epicure in prizing a joint that displays "a streak of fat, and a streak of lean;" in other words, both these should be eaten.

The lean affords the material for bone and muscle; the fat, for the blood and for warmth. Those races of men who pass their lives amid the Arctic snows love to feed on oil and blubber, and to an Esquimaux no more prized tidbit can be offered than a score or so of tallow candles. On the other hand, the Hindoo laborer, who is hard worked under a tropical sun, and hardly knows the sensation of cold, lives on rice, and

cares nothing for fats. These different appetites are natural instincts, which prompt each to prefer that which is best for him.

But the appetite is not always so true a mentor. We constantly notice pale, scrofulous, and consumptive young persons of both sexes who have an aversion to fat meat, when it is precisely what their system requires. Children should be encouraged and urged to like fat. Did they take it more freely, there would be less necessity to administer it to them in the form of cod-liver oil. The use of table oil, which is much more limited in this country than in southern Europe, likewise has an excellent influence on feeble lungs, and might with advantage be extended.

Fat meat should be well cooked, and of its varieties mutton fat is that which in debilitated constitutions is most beneficial. Mutton suet boiled with milk is an excellent food in wasting diseases.

FOWLS.

The flesh of fowls is drier than that of the large animals we have mentioned, and is ordinarily easy of digestion. It is particularly suited, therefore, for persons of delicate stomachs. The white meat is more tender than the dark part, but not so juicy, nor so highly flavored. Most of the domestic breeds are healthy, when properly cared for, and their meat generally is sound and wholesome.

GAME.

In the majority of instances, the flesh of wild is more tender than that of domestic animals, and at the same time has a more decided flavor. The latter arises probably from the different habits and variety of food which they adopt, while domestic animals have a much greater uniformity of diet and conditions. Both qualities recommend it to the hygienist and the gourmand, and excuse to some extent the severity of the game-laws which are in vogue in the thickly settled countries of Europe.

Venison, which with us is still abundant, is a most wholesome and toothsome meat, and the same may be said of the flesh of squirrels, rabbits, wild-fowl, "and such small deer."

Turtles, which are caught in large numbers in many States, are in rightful esteem. They are very nutritious, and by no means indigestible for well persons. The usual method of cooking them, with wines and spices, is too rich for many, and might be simplified with advantage.

Still more delicate are frogs. The prejudice which used to exist against them as an article of food is rapidly disappearing, and will certainly vanish after the first mouthful has been swallowed. Their flesh is exceedingly tender, white, and delicious.

FISH.

Fresh fish are to be highly recommended as a food, even for invalids, and those who suffer more or less

with indigestion. The flavor of some varieties, as the trout and salmon, is unsurpassed, and the flesh is highly nutritious. They should always be *fresh*, however, as a very few hours suffice to destroy both their flavor and their wholesomeness.

The smaller varieties are generally fried, which is the worst possible mode of preparing them for a delicate stomach. Broiled or baked, they are much superior. It is well to remember that at certain seasons of the year some kinds of fish become to some extent poisonous, and their flesh causes sickness of the stomach, and general discomfort. The rockfish is an instance, and all fish when spawning are less desirable as food than at other times.

SHELL-FISH.

The most important article under this head is the oyster. This is excellent food, readily digestible and very nutritious. They are preferable either raw, roasted, or panned. Care should be taken that they are alive when opened, and the old rule that they should not be eaten in any month without an *r* in its name is founded on wisdom, for these are their breeding seasons, and they are apt to be soft and milky. Salt oysters are more digestible than fresh, and they should be taken before rather than after other food.

Clams, on the other hand, are very indigestible, and, if taken at all, should be chopped very fine and made into soup.

Lobsters, crabs, shrimps, etc., may be mentioned in

this connection. They all belong to the less digestible class of aliments, and should be altogether eschewed by delicate persons. In some individuals they cause severe colic, and an eruption on the skin known as nettle-rash. They are inferior in all respects to the finer species of fish.

DISEASED MEATS AND THEIR DETECTION.

While we have been at work upon the present volume, we have observed no less than three convictions of butchers for selling diseased meats recorded in the public papers. For every one convicted, hundreds kill and vend diseased stock with impunity, and even put on sale the flesh of animals which have died of contagious diseases. It is well known how prevalent these maladies have been of late years, and there is no question but that much sickness has originated from the consumption of the flesh of diseased animals.

Every one should learn how to distinguish fresh and healthy meat from that which is diseased and approaching putrefaction.

Fresh meat should not be too fat; it should be firm and healthy-looking and not too yellow, and not bleeding at any point. Butchers sometimes rub melted fat over the carcasses of thin and diseased animals, to give them the glossy look of health.

The muscles should be firm and somewhat elastic, and hardly moisten the finger, not tough; the pale,

moist muscle marks the young animal, the dark-colored the old one.

When good meat is placed on a white plate, a little reddish juice frequently flows out after some hours. Good meat has little odor, and this is not disagreeable, whereas diseased meat smells faint and sickly, and is soft and wet. Healthy meat is neither of a pale pinkish nor deep purple tint, but has a slightly marbled appearance, from the little veins of fat, and the fat of the internal organs especially is firm, hard and suety, and never wet. There should be no paleness nor change in the appearance in cutting across some of the muscles; the interior of the muscle should be of the same character, or but little paler than the exterior; there should be no softening, sticky fluid, nor pus in the body of the meat. The flesh becomes soft and tears easily when stretched in the commencement of decay.

Under the microscope, the fibre should be clear and well defined, and free from animalculæ; while that of diseased meat is sodden and tumid, as if it had been soaked in water, the transverse streaks are indistinct and wide apart, and animalculæ frequently abound in it.

The degree of freshness of meat when putrefaction begins is judged of by the color, which becomes paler; by the odor, which becomes at an early stage different from the not unpleasant odor of fresh meat; and by the consistence. Afterward, the signs are marked; the odor is disagreeable, and the color begins to turn greenish. It is a good plan to push a clean knife into the flesh, up to its hilt. In good meat the resistance

is uniform, in putrefying meat some parts are softer than others. The smell of the knife is also a good test.

The marrow of the hind legs is solid, twenty-four hours after killing; it is of a light rosy red. If it is soft, brownish, or if there are black points or spots, the animal has been sick, or putrefaction is commencing. The marrow of the fore legs is more fluid, something like honey, of a light rosy-red color.

In cattle which have died of pleuro-pneumonia, or rinderpest, the flesh is flabby, and when cut a glairy fluid drips from it. On the first day it is unnaturally red, but on the second and third turns to a dark brown.

A HINT FOR THE COOK.

Whenever there is any suspicion attached to meat, but not enough positively to reject it, the precaution should be observed to *cook it thoroughly well done.* It has been ascertained that heat, which is a powerful disinfectant, will destroy the germs of disease, and the life of animalcules, and render even decidedly diseased flesh almost or quite harmless. This precaution should *always* be observed in cooking pork, for a pig with the trichina disease may be at the time of killing in apparently perfect health. Yet whoever eats the smallest morsel of the lean meat of the animal without first killing the parasite in the flesh, becomes surely affected with one of the most painful and terrible, although fortunately not one of the most fatal, of diseases.

POISONOUS FLESH.

Every one should know that both domestic animals and wild game occasionally feed on herbs and berries which give their flesh a poisonous property, when eaten. Sometimes sheep browse on plants which impair the healthfulness of their mutton, and those who partake of it are seized with violent pain, vomiting, and purging.

Still more serious are the symptoms which ensue after eating the flesh of *partridges* that have been feeding on laurel-berries, a very abundant fruit in some districts in the fall of the year. These berries contain prussic acid, one of the most fatal and rapid poisons to man, and the amount which is absorbed by the flesh of the bird will lead to alarming and even mortal symptoms. Within the last few years several such cases have been reported in New York and Boston, and people cannot be too careful how they indulge their appetite on the flesh of this fowl.

UNHEALTHY FISH.

We have already incidentally referred to the poisonous character of some *fish* at certain seasons. In the hot months all kinds are less salubrious than in cold weather. Even though packed in ice they lose flavor, and are not so fit for the table. Especially lobsters, mussels, eels, catfish, and oysters acquire poisonous qualities. In the south, the catfish is never eaten; and instances are reported where in the summer

months it has brought on very alarming symptoms. Sick-stomach, headache, eruptions on the skin, diarrhœa, and colic, with severe prostration, may follow. The cause of these symptoms is unknown, as no difference in the fishes' meat can be detected, but it probably depends upon the food they obtain at these seasons. The ancients knew the circumstance well, and attributed it to the moon.

Doubtless there is something in this opinion. The native Indians of our country, and also the hunters and trappers who have long lived among them, refuse to partake of flesh or fish which has been exposed to the moon's rays for several hours, alleging that it thereby acquires deleterious properties.

ON PORK-EATING.

That *pork*, or swine's flesh in any of its forms, is poisonous when in a healthy condition, is a popular notion which we have been at pains to denounce. But it is undeniably true that there occur instances of poisoning from bacon, ham, sausages, and lard, and we mention them, not only so that persons may be on their guard, but that such examples may not be cited indiscriminately as proving the harmful nature of a pork diet.

Hogs which have died of the "hog cholera" are sometimes cured in the usual way by unscrupulous dealers, and sold. Their flesh cannot fail to be injurious. Lard occasionally is found with qualities very irritating to the stomach. This probably acci-

dentally arises from the presence of a certain "empyreumatic" oil, of poisonous character, which it is known is produced when a strong heat is applied to a small portion of lard. A few drops of this oil will destroy a bird.

The poison of sausages has become so notorious in some parts of Europe, as to have been the subject of a prize essay. It was found that they only acted in this manner when they were partially spoiled or fermented in the interior, which is readily detected by the odor. Such instances are very rare in this country. Moreover, we generally, and should always, confine ourselves to well-cooked fresh sausage, and not eat that which has been preserved by salting and smoking, as is the usual style in Europe.

POISONOUS MILK.

For a year or two, at the most sensitive and frail epoch of human life, milk is almost the exclusive food of many individuals. How important, then, it is that this variety of food should be furnished of sound quality, and free from sophistication! Yet hardly an article of consumption suffers more from the unscrupulous hands of dealers.

Very little of the milk sold in our large cities can be recommended even to adults, not to speak of the tender infants to whom it is chiefly given.

But at present we propose to confine ourselves to describing some circumstances under which this fluid

acquires poisonous qualities outside of the fraudulent acts of milkmen.

A cow, to give healthy milk, must be herself healthy. This statement, simple as it is, is by no means conceded by dairymen, because their interests are opposed to it. But we insist upon it, and repeat that it is proven by numerous examples, that milk from diseased cows is an irritating, pernicious, and poisonous fluid, and we firmly believe, on very abundant evidence, that a very large part of the mortality of infants is due to the use of such milk.

Cows penned in foul stables, and fed with distillery slops, do not yield a product which any human being ought to drink. Recent researches in Massachusetts have placed the fact beyond doubt, that cows affected with that very prevalent malady, the "foot-and-mouth disease," give a milk which produces vomiting and diarrhœa, accompanied with slight fever, an eruption of small water-blisters about the lips, and sometimes similar blisters and ulcers upon the body and legs. In other words, the milk conveys the disease from the brute to the baby. Thoroughly boiling the milk is a protection, as the heat seems to destroy the virus of the disease.

MILK-SICKNESS.

In the valley of the Mississippi, especially in some parts of Indiana, Illinois, and Kentucky, there is a much dreaded disease, common both to stock and the human race, called the "milk-sickness." Horses, cattle, and sheep are all subject to it, and it causes most

serious loss to the farmers, as, once contracted, it is never recovered from. The legislature of Illinois offered for a long time a reward of twenty thousand dollars to the person who could discover its cause and remedy. It appears after the first frost, and only among stock which pastures in or near woods. The milk of cows at that time will convey the disease to those who drink of it, though butter and cheese made from the milk are eaten with impunity, probably owing to the neutralizing effect of the salt they contain.

Of course many have been stimulated by the large reward to discover the cause of the disease; and there seems little doubt but that it arises from some plant upon which the cattle feed in the autumn. Several such have been suggested, with varying degrees of probability. Perhaps that which has had the strongest evidence adduced in its favor is the white snake-root (known to botanists as the *Eupatorium ageratoides*). But as to a cure, none has been found; and as the disease is not only perilous at the time, but leaves behind it a long-enduring debility of the nervous system, the most prudent plan is to avoid the use of milk altogether when travelling in districts where the sickness prevails.

POISONOUS HONEY.

"A land flowing with milk and honey," is the familiar Oriental figure of speech for a region abounding in whatever is necessary to administer to

man's necessities and luxuries. But it is well to know that even these standard articles of Eastern diet are in this country subject to incidental changes which not merely deprive them of value as food, but assign to them actually poisonous properties.

Honey, it is well known, is generally collected by bees from the flowers of all plants, without discrimination. To be sure, an insipid variety is produced by furnishing the bees sugar and water for food, which forms a harmless, but also flavorless, honey. Sometimes these busy workers collect their stores from the flowers of plants which impart to the honey their own poisonous character, and what we expect to find a sweet and healthful food proves to be fraught with danger to life and health. Of the plants which thus envenom the sweet, the mountain laurel (*Kalmia latifolia* of botanists), the oleander, and the aconite, are sufficiently abundant in some districts of this country to render the collection of honey of doubtful propriety. The symptoms caused are dizziness, dimness of sight succeeded by delirium, which is sometimes mild or pleasant, sometimes ferocious, resembling intoxication from spirituous liquors, pain in the stomach and bowels, convulsions, vomiting and purging, and in a few instances death. The treatment should be to take at once an emetic of mustard, or salt and water.

II. Vegetable Foods.

The vegetable foods are very numerous, and unlike in appearance and taste, but to a large extent their nutritive properties depend upon the presence of two familiar substances—*starch and sugar*. What is still more singular is, that these dissimilar substances are to all intents and purposes in the human body the same, as starch when eaten is changed into sugar, and the chemical constitution of both is identical. The same is true of their action on the system. They are the fat and heat producers, and on this fact hangs the whole art and mystery of increasing or decreasing our weight. One who is too fat must avoid these articles, while he who is too lean should select them.

But this is apart from our present theme.

STARCH

Seems more familiar to us as an article used in preparing clothes after washing, than as an article of diet. Starch for this purpose is derived from the potato, and is not suitable for food, as it possesses irritating properties. But arrowroot, tapioca, sago, corn-starch, and maizena are also forms of starch, more pure and more palatable than that from potato. Of these, arrowroot and corn-starch are the purest, and most eligible. They constitute a light, nourishing, and easily digested food for both the well and the sick. Arrowroot, which is chiefly obtained in Bermuda, is largely adulterated with the inferior varieties, and

corn-starch, therefore, which is much cheaper, is often quite as good.

Whatever form of starch is used, it should be made into a paste with a little cold water, and then be mingled with boiling water, as it requires considerable heat to break the starch-granule. The special methods of preparing dishes from these various articles we shall not enter into in this connection; we will give them in the second part of this work, when we come to speak of cookery for the sick.

SUGAR.

Most of the "sweets" with which we please our palates depend for their attractive taste on the presence of sugar. In its commercial form this substance is usually obtained either from the sugar-cane in the Southern, or the sugar-maple in the Northern States. It is an eminently wholesome article of diet for most persons, in spite of various prejudices which are entertained against it. Those who work in it, prepare it, and eat it freely in a raw state, increase in weight rapidly.

It has a marked preservative effect both on meat and vegetable substances, and for this reason is employed in the curing of hams, and the canning and jellying of fruits. It is present in milk, and is always a favorite with the little folks. They are often, poor things! deprived of it, out of a fear that it will hurt the teeth, but there is no ground for any such supposition.

As, however, when taken into the stomach, it under-

goes a chemical change into an acid, it disagrees with many who are troubled with acidity, or indigestion associated with heartburn. These, and those who are afraid of growing too corpulent, should avoid it.

Brown sugar is not nearly so pure as white sugar. It contains a large quantity of foreign substances, and also a peculiar mite or animalcule, called the *sugar acarus*, which bears a striking resemblance to the insect which causes the itch, and is said, we know not how correctly, to be the cause of that eruption on the hands of those who deal in sugar, known as the "grocer's itch."

White or refined sugar is made from brown sugar by a process of melting and dissolving. It is more suitable for invalids and preferable for general use.

BREAD.

This all-important article of food, "the staff of life," as it is often and appropriately called, is made from the flour of several grains, but in our country chiefly from wheat and corn. It may be either fermented by the action of yeast, to render it "light," or it may be unfermented, either like the Passover bread of the Jews and the "hard tack" and pilot bread of soldiers and sailors, or lightened by having air forced into it, as the so-called "aerated" bread manufactured in our principal cities. There is no material difference in the wholesomeness of these various modes, so far as has been ascertained. The "yeast powders," however, which have been extensively introduced into trade of

late years, are not always innocuous. They consist of tartaric acid and carbonate of soda, and if used constantly are more apt to lead to digestive troubles than the use of brewer's or home-made yeast.

The flour customarily employed has the bran carefully bolted from it. This renders it white, and agreeable to the eye, but detracts from its nourishing qualities. "Whole meal bread," or that made from the whole grain thoroughly ground, has been shown beyond doubt to be more valuable as food than fine flour. It also acts, like bran-bread, favorably upon the bowels, maintaining them in a healthy, regular condition, and is more fattening. Invalids will do well to prefer it.

Corn-meal is a great and deserved favorite in this country, though hardly known as a food for man in Europe. It is fattening and laxative, and requires no fermenting to make good bread. Some persons, however, have more difficulty in digesting it than bread made from wheat.

Rye is used much less than the above-mentioned cereals. It does not differ materially from wheat in point of wholesomeness, except that it is not quite so digestible, and is liable to a well-known disease, which produces the ergot or spurred rye. When this is eaten in bread for a length of time, it interferes with the nutrition of the body, and may give rise to fatal disease.

Of the numerous

VEGETABLES

Which furnish our tables, we can only refer to a few. Potatoes and beets are perhaps the most nutritious, the former containing much starch, the latter sugar. Peas and beans are not so valuable as a nutriment, though they are very largely employed. They are also less easy of digestion. Turnips, carrots, and parsnips are watery, and neither so digestible nor so nutritive as the preceding.

FRUITS.

The prejudice which prevails against eating fruits, lest they should bring on disturbance of the bowels, etc., is only true so far as it applies to unripe or over-ripe fruit. That which is fully ripe and fresh constitutes a healthful though not very nutritive diet, one well adapted to warm weather, and which can be freely indulged in without fear of deleterious consequences. Even children need not be limited in its use. The numerous deaths in summer among children from bowel complaints do not arise from this cause, as it will be noticed that the large majority of such deaths are of children under two years—too young to consume much fruit.

POISONOUS CONFECTIONERY.

It is sad to think that the very means devised to delight and reward children should often be the cause

of their sickness and pains. The gay colors with which confectioners paint their sugared sweets, so that they may please the eye as well as the taste, are too often composed of poisonous materials, which, even in small quantities, cannot be taken without harm.

We have before us a recent report of a chemist who visited the principal confectioneries of one of our large cities and purchased packages of their gaudy-colored sweets, but instead of eating analyzed them. He acted wisely, as his report shows. Nearly all the yellow and orange colors he discovered to be produced by a poisonous salt of lead (chromate); the green were many of them tinted with a combination of arsenic and copper (cupric arsenite); some of the red with mercury (mercuric sulphide); and the mauve and magenta with aniline dyes, which are known to be active irritants to the skin. He further found some of the lozenges and candy-sticks to contain about a sixth part of the insoluble white clay known in commerce as *terra alba;* and others to have about as much ground plaster of Paris!

This is a disagreeable piece of news, but it explains how the little folks fall sick sometimes without apparent cause, and why some people have learned by experience that candies are very unwholesome luxuries. The fault is not with the sugar they contain, but with the adulterations and pigments which unscrupulous tradesmen mix with their goods in order to save a few pennies.

Our advice is to avoid all the green, blue, and magenta-colored confectionery, and if any brilliant hues

are chosen, the yellows and reds *can be made* from perfectly harmless materials, namely, from cochineal, saffron, and turmeric.

III. Spices and Condiments.

The question of the propriety of the use of these articles has agitated the minds of many writers on hygiene of late years. One party maintains that an artificial excitement of either palate or stomach is injurious, and therefore to be condemned. We remember to have read in one of their essays that "a grain of pepper is as poisonous as a grain of strychnine;" and in another, to have seen as many maladies attributed to the use of salt as to the abuse of liquors.

Such extravagances are in no wise defended by the words of science. On the contrary, it is proven beyond question that the temperate and occasional use of condiments facilitates digestion, and benefits the general health. Nevertheless, it is equally true that, like all other stimulants, their habitual use brings on debility of the organ, and, if taken in excessive quantities, they may induce irritation and inflammation. What is true of most, if not all the good gifts of Nature, applies with unusual force to them—that moderation and reason must set bounds to indulgence, otherwise they will do harm.

SALT.

The most common is *salt*. This is contained in small quantities in most articles of food as they natu-

rally exist, but not in sufficient amount to satisfy the demands of the system. It forms a large and very essential element in the blood, and when deprived of it, much suffering results. Some generations ago, in Holland, it is said to have been the custom to punish criminals by confining them and allowing them no food but bread without salt. The consequence was that they became infested with worms, the blood was depraved, and they perished miserably.

Some have attributed scurvy and similar complaints to an immoderate consumption of salt; but experiments have shown that this is not the case. The value of this condiment to the lower animals, especially those which feed on grasses, is familiar to every farmer. Its revivifying power is such, that if a strong solution of salt and water be injected into the veins of a person dying with cholera or other rapidly exhausting disease, the patient will often be roused from his stupor, and instances have been known where it led to recovery. Its many uses in domestic medicine we shall speak of on a later page.

The urgent demand for salt meats which is sometimes witnessed in diseases should be respected as an intimation of Nature, and obeyed.

BLACK PEPPER

Is the unripe fruit of an East Indian vine. In small quantities it is an efficient promoter of digestion, but there is no doubt it is often used to excess, and

weakens the stomach by too constant stimulation. It should be taken with great moderation.

RED PEPPER,

Or Cayenne pepper, is a much more powerful stimulant than the black, but is not, in proportion to its strength, nearly so irritant. In tropical climates, and during periods of excessive heat, it enables the system to resist the prostration caused by the high temperature, and for this reason the Spaniards of Mexico and South America are extremely fond of it.

MUSTARD

Is a favorite condiment in the United States. It is a gentle stimulant to the whole system, and in the preparation of salads, aids the digestion of those otherwise unwholesome compounds. The black and white mustards are the products of different species of plants, the former being the more powerful, but less elegant for table use. Its valuable properties as a resource in the home treatment of disease we shall detail in a subsequent chapter.

VINEGAR

Is the remaining condiment which we look for in every caster. The best is obtained by the fermentation of cider and wine, and is therefore called cider vinegar and wine vinegar. But much of that sold under these names is manufactured by allowing raw whiskey to pass through beech-wood shavings, or,

worse still, by diluting sulphuric acid (oil of vitriol) with water, and coloring it with burnt sugar. These frauds should be punished, as the vinegar thus prepared is injurious to the health.

Pure vinegar promotes digestion, adds to the flavor of food, and slightly stimulates the whole system. Diluted considerably with water, it was a favorite drink with the ancient Roman soldiers on fatiguing marches, and is asserted to possess the power of preventing scurvy.

Vinegar dissolves most albuminous substances, it therefore promotes the digestion of those aliments. It also produces a solvent action upon several vegetable principles, and the popular practice of mixing it with salad is one to be commended on scientific grounds. If vinegar be largely used, it dissolves the muscular tissues of the body, and greatly impairs the digestive powers. There are ladies who employ this condiment, not for the purpose of imparting piquancy to their food, but with the object of arresting their tendency to *embonpoint*—in plain English, to excessive fatness; this practice has often produced serious disease, and even death. Many persons are constitutionally disposed to obesity, and cannot avoid the dreaded accumulation of fat, except by bringing on themselves more serious evils.

QUANTITY OF FOOD.

We have gone with some minuteness into the various articles of diet most common in this country,

because we are what we eat, in more than one sense. Leaving now these, we shall consider the general rules which should govern us in partaking of food, relating to its quantity, variety, and the hours of meals.

The *quantity* we take is generally regulated by appetite. This is a sufficient guide, when it is not created by condiments or stimulants. But it is very easy to create a fictitious appetite which will lead us to excesses at table certain to prove harmful. Highly spiced food, liquors before meals, complex and tempting dishes, are very certain to tempt us to break the golden rule of moderation beyond which lies danger. In the well-to-do classes of society there is frequent inclination to eat to excess, and it is in that class, consequently, we find the most dyspepsia, gout, and apoplexy.

The average American is naturally the largest eater in the civilized world. His voracity would appal a Spaniard or an Italian, nations which flourish on repasts which would strike us as meagre in the extreme. The celebrated Venetian Cornaro, who prolonged his life beyond a century, confined himself to twelve ounces of solid food a day; the American averages sixty ounces a day, and, when engaged in active pursuits, it does not seem too much for him. Unfortunately he often continues this voracity to his own damage, when he is engaged in sedentary pursuits.

The amount we should eat, depends directly upon the amount of work we do. The hunter, the laborer, or the farmer requires more nourishment than the clerk or the student. Occupation, therefore, must

be kept in view in prescribing a diet. So, too, must age and sex. Women eat less than men, and an old person less than one in middle life. Habit has also to do with it, as much depends on how much we have heretofore given our stomachs to do.

From this it will be seen how impossible it is to lay down oracularly any diet-table to be adhered to.

The smallest eaters in the world are the Bedouin Arabs. Half a dozen dates fried in butter suffice one of them for a whole day. In spite (or in consequence?) of this most meagre diet, they are a long-lived, muscular, healthy race, usually lean and gaunt, but with astonishing powers of endurance.

The largest eaters are also found in Asia, but in the far north, on the cold plains of Siberia. The natives of this bleak region seem literally insatiable. Travellers —trustworthy observers—say that three of them will consume a reindeer at a single meal, and that one of them will frequently eat forty pounds of meat a day! A Russian Admiral relates that to test the capacity of one of them, he gave him immediately after a hearty breakfast a dish containing twenty-eight pounds of rice boiled down with several pounds of meat. The native was delighted, and cleaned the platter at a single sitting!

There is as much difficulty in saying

WHAT WE SHALL EAT,

As how much we shall eat. Here again the part of wisdom is for every one to study his own constitution,

and sedulously avoid whatever he learns disagrees with him. But the selection must not be carried so far as to bring about a monotony in diet. This is never advantageous. Were one to confine himself to the best food, say roast beef and potatoes, after a while his system would fail under it, and his blood become impoverished. A good proportion is about one-third meat and two-thirds vegetables, the varieties of each being frequently changed. Meat should be chiefly taken at breakfast and dinner.

HOURS OF MEALS.

The time at which we should take our meals is so purely a matter of habit, that it is useless to define it strictly. In the great cities the exigencies of business force many men to take a late dinner, at five or six o'clock. Farmers and laborers, on the other hand, dine at noon, or shortly after. The stomach soon accustoms itself to either hour, and, provided that at least four hours intervene between the last full meal and the hour of retiring to sleep, it makes no difference with regard to health.

Tea or supper, when taken, should be light and digestible, and should precede sleep by at least two hours. Indeed, nothing whatever should be eaten within this period of the hour of sleep.

Breakfast should be eaten very soon after rising in the morning. The recommendation to take a walk, or horseback exercise, or an hour or two of study, before breakfast, is to be disregarded as contrary to sound hygiene.

A national fault with us is to eat too fast. The pressure of our busy lives, and the rattle and clatter of hotel tables, insensibly lead us into this bad habit.

We pay for it in ruined stomachs, and all the miseries of dyspeptic sensations. Food must be well chewed, and not thrust too rapidly into the stomach. It should not be taken when the mind is preoccupied, nor when our spirits are anxious and perturbed, nor immediately after or before severe mental or bodily exertion.

Cookery is an art still in its infancy in the United States. Our hotels and boarding-houses are standing witnesses of how careless and ignorant we are in this respect. Their tables would not be tolerated in most civilized countries. It is thought almost derogatory to a man to be particular about his food. All this is a mistake. We cannot give too much attention to our kitchens for the sake of health, if we do it judiciously. There is nothing in personal sanitary science that we should strive for more earnestly than that

> "Good digestion follow on good appetite,
> And health on both."

To sum up in a few maxims our advice on these important subjects, we present these, which should be repeated as regularly as grace itself:—

> Satisfy your appetite, but do not stimulate it;
> Eat less than enough, rather than too much;
> Change your diet as often as your clothing;
> Time is not lost which is spent in eating;
> It sometimes pays better to study a cook-book than a day-book.

ADULTERATIONS OF FOOD.

Even those articles upon which we depend for our subsistence have not escaped fraudulent and dangerous adulterations. We have to incur in eating, not only the perils which may arise from the presence of disease or poisonous qualities produced by exceptional natural circumstances, but also of injurious substitutions made by traders with a view of increasing their ill-gotten gains. In several States laws have been enacted for the purpose of punishing those who can be detected in these reprehensible manœuvres. But, unfortunately, it is not easy for the consumer to convince a jury of these frauds, and there are few who care to take the trouble and expense of doing so.

ADULTERATED BREAD.

In this country, where grain is so abundant, there is little temptation to adulterate wheat flour, and as it is brought in the market, it is without fraudulent addition. But in making bread in large bakeries, substances are added to improve the color, or the quality, which are objectionable from a hygienic point of view. Of these, alum is said to be one of the most prominent. It is added for the purpose of whitening the loaf, and its constant consumption would unquestionably finally produce troubles of the digestive organs and injure the teeth. The test which chemists apply to discover its presence is quite simple. A pure and clear tincture of logwood is brought into contact with

the suspected bread or flour. If no alum is present, a pale yellow or straw color is produced; but if that substance is in the flour, then instead of the yellow a dark red hue is produced. In Europe, magnesia, pipe-clay, plaster of Paris, and a white earth called *terra alba*, have been found mixed with flour, in order to increase its weight and bulk. Rice flour and potato flour, both cheaper than superfine wheaten flour, have also been mingled with the former. Such additions as the latter, though deceits and hence to be disapproved, would have no noxious influence on the health of the consumer, so that they may be considered almost innocent by the physician.

ARROWROOT.

Arrowroot is extensively consumed by invalids and convalescents, and it were especially desirable therefore that a thoroughly reliable article could be obtained. The best flavored and the least irritating is the Bermuda arrowroot; but it is only rarely that any of it can be obtained which has not suffered by addition of some of the inferior and cheaper starches derived from potatoes, corn, or wheat.

BUTTER AND CHEESE.

Good butter should not contain more than one or two per cent. of salt when sold as fresh; and when sold as salted, not over seven per cent. But as it is easy to add to its weight by increasing the salt, as much

as twelve or thirteen per cent. is often added. The coloring matters which are used to give the yellow hue which is so much admired in butter and cheese, are mainly mashed carrots, yelk of eggs, and arnotta, the latter obtained from a tropical tree found in South America. None of these dye-stuffs, as they may be called, act injuriously on the health, but it may be questioned if they improve the quality of the dairy products with which they are mingled.

When butter is thoroughly whipped with milk or water, it takes up sufficient to increase its weight nearly forty per cent. We remember that not long since an ingenious machine to perpetrate this fraud was actually advertised and sold in this country. Of course such action can only be regarded as a bare-faced swindle. A spurious kind of fresh butter is made in water by dissolving the salt out of cured butter and washing the product with sweet milk. This stuff is produced in large quantities in some of our cities.

During the siege of Paris *artificial butter* was manufactured from the elements of fat known as stearine and margarine; and an eminent scientific authority in New York states that thousands of pounds are sold daily in that city, of butter adulterated with the stearine and margarine obtained from the refuse of cotton-seed oil. That lard, suet, and other fats are frequently used to accomplish the same purpose, is well known. Unfortunately, the additions are made so skilfully that it is by no means easy to detect them on cursory examination.

Cheese, besides the coloring matter above alluded to, sometimes contains starch. Instances have not unfrequently occurred where after eating freely of cheese, persons have been seized with symptoms of acrid poisoning. Chemical investigations have revealed the presence of small quantities of arsenic and copper in such cases. These mineral poisons were probably added accidentally in the course of manufacture.

SUGAR, TEA, AND COFFEE.

Sugar is nearly always met with in a genuine state, though grocers are charged with occasionally adding sand to increase the weight, and undoubtedly often do add water to the lower grades for the same purpose. Lump, and sifted refined sugar should be preferred, not only because they cannot be tampered with in this way, but also because raw brown sugar generally contains vast numbers of a minute insect, called the sugar acarus, which strikingly resembles that which by burrowing in the skin produces the itch. Indeed, the scaly and itching condition of the skin often seen in grocers, and called "grocer's itch," is supposed to be caused by this insect.

Tea is said to be adulterated with the leaves of many domestic plants, the willow, oak, beech, elm, etc. The tea-leaves which have been already once used at hotels and large restaurants are sold to dealers, who steep them in a solution of catechu—an astringent substance—dry them, mix them with fresh leaves, and put them again in the trade. Sometimes they

are dried on plates of copper, to produce a green tea. No process can simulate, however, the fine aromatic flavor of high-class tea, and this is the best test of its purity.

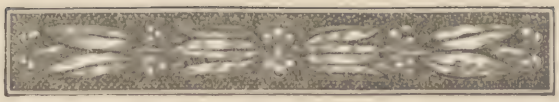
Coffee, bought in the grain, can be secured free from any adulteration except mingling of lower with higher grades. It should always be so purchased, for the ground coffee offered to the public is nearly always adulterated with wheat, rye, beans, chicory, or old grounds dried and aromatized by the addition of essence of coffee. It is even said that horse-livers are baked, dried, and ground up with old coffee-lees to restore their flavor!

Chocolate is rarely to be obtained pure, and even the very best Spanish chocolate is prepared for use by adding sugar, starch, and vanilla to the mass. These additions are not objectionable, but the same cannot be said of brick-dust, Venetian red, and unclean grease, asserted by some authors to have been detected in chocolate cakes offered for sale as a pure article!

Black pepper, red pepper, and mustard are subject to numerous adulterations, but rarely of an injurious character.

On the whole, we believe that in this country we are more free from poisonous food-adulterations than any of the older and more crowded communities where the necessaries of life are demanded by numbers unable to pay for the better class of articles, yet unwilling to put up with those within their means. We have little doubt that for every case where health

is injured by adulterations of food, there are fifty cases where the injury is from carelessness or ignorance in its preparation for the table, and that the cook, not the grocer, is to blame.



CHAPTER III.

DRINKS AND NARCOTICS.

CONTENTS.

Water—Tea and Coffee—Chocolate. Temperance drinks: Soda water—Lemonade—Iced tea—Beers. Alcoholic beverages, their use and abuse: Distilled liquors—Wines. The cure of drunkenness. Narcotics—Tobacco—Opium. Hunger and Thirst.

WE now approach a portion of our subject which has been the battle-field of hygeists time out of mind. The greatest temptations to violation of the laws of life and health seem to present themselves on inquiring, What shall we drink? Very few people can answer as did the philosopher of ancient Athens, that the question seems needless when we have such an abundance of so excellent a beverage as *water*. On the contrary, the ingenuity of art and the resources of science are taxed to find substitutes for this all-pervading element.

We are bound to confess, at the outset of the discussion, that it is our fixed opinion, drawn from a careful study of the subject, that, in spite of the really valuable properties which other beverages undoubtedly possess, the human race would be healthier and happier, had they never sought any other potation than that the philosopher recommended.

Yet we are not blind to these properties, and we shall proceed to assign to each of the popular beverages the merits and demerits which it actually has.

WATER

Itself is not always to be relied on implicitly. Its sources of impurity are numerous, and must be carefully guarded against. Rain-water, which is virtually distilled water, and therefore pure, is not the most wholesome. It is insipid, and acts upon lead pipes and vessels, absorbing some of the poisonous metal much more rapidly than spring-water. The latter is man's true drink. It is freshened with carbonic acid gas purified by passing through the natural filter of the earthy strata, and cooled by the low temperature of the soil. Sometimes it brings with it a store of mineral salts from nature's own pharmacy, so combined as to surpass the most skilled compound of human art. When these salts are those of lime, it is "hard water," not suitable for washing, as soap will not dissolve in it. But for a beverage it is not injured. Indeed, an experienced physician who passed his life in a limestone district has told us he feels sure that families raised on this water are of more robust build and larger boned than others. For it is lime that forms the bones in great part.

Water which has lain long in contact with vegetation becomes contaminated and unfit for use. So also when it is drawn from the vicinity of sinks and sewers. Bowel complaints of all kinds broke out in our

regiments when they were obliged to drink the waters of the southern swamps,

> "the gilded pools,
> That beasts did cough at,"

as was so frequently the case. Dr. Snow, of London, traced a violent outbreak of cholera in a crowded street to the use of water from a certain pump, and checked the pestilence by chaining down the pump-handle. Often the constant changes from one water to another, which travellers undergo, disturb the bowels.

DANGER FROM LEAD PIPES.

The pipes in which water is conveyed, and the cisterns, basins, and wells in which it stands, should be clean and free from injurious mineral substances; especially rain-water used for drinking should not be exposed to the action of lead. It is related that the inhabitants of Amsterdam became greatly exercised at the alarming increase of lead-colic, and other symptoms of poisoning by that metal, in their city. They employed a skilful chemist to ascertain the cause, and he found that it was the increased use of sheet-lead instead of earthen tiles for roofs.

What pipes are most to be recommended on the score of health, has been much debated of late years. Those of lead invariably impart a certain amount of that metal to the water, and even in the minutest quantity it will, in susceptible individuals, give rise to dyspepsia and neuralgic pains. Iron pipe is free from such

objections, but it is not readily adapted to circuitous passages in houses. For conducting water from a spring in a direct line to the dwelling, it is practicable, cheap, and safe.

The pipes of "galvanized iron," as it is called, prepared by passing iron pipes through a bath of melted zinc, so as to give a thin coating of the latter metal, have greater durability, being less apt to rust, and are equally unobjectionable.

Gutta-percha pipes are sometimes used in wells, and would seem to be very suitable for this purpose.

Pure block-tin pipes are excellent on the score of health, as the oxide of tin is insoluble, but they are rather expensive for general use.

Quite recently much use has been made of lead pipe lined with tin. This material is sufficiently flexible to be carried anywhere, and is not expensive. It has been longer used in England than in this country, and is there highly commended and on good authority. Nevertheless, it would seem difficult, if not impossible, to entirely prevent in this way contact between lead and water, and when it does take place, the corrosive action would be rather hastened by the presence of the other metal.

EXCESSIVE USE OF WATER.

Even pure water, great as are its virtues, can be used intemperately, and with effects just as ill as intemperance with other drinks. One of Napoleon's generals, during the famous passage of the Alps,

becoming much heated and exhausted, called for some water. A soldier presented him a canteen just filled with ice-water from a neighboring glacier. He swallowed a deep draught, and fell dead instantaneously. Many such examples could be adduced. They preach a temperance sermon embracing even cold water itself. The habitual and inordinate use of ice-water in summer is common in this country, and the cause of numerous attacks of colic, cramps, diarrhœa, and dyspepsia. These consequences are especially to be apprehended when the fluid is taken upon an empty stomach. When very thirsty, as after a long walk or on a march, it is better first to rinse out the mouth several times, then take a few mouthfuls of cool water and a piece of bread or cracker, after which small quantities can be swallowed at intervals of two or three minutes.

With food, as at meals, water aids digestion by softening and dissolving the solids, and thus allowing the juices secreted by the stomach to act more promptly upon them. The celebrated Italian, Jacques Casanova, relates that he was cured of an obstinate dyspepsia, by accustoming himself to swallow several large tumblers of water with each meal. And Dr. Hammond has shown by experiment that there is no danger of diluting the gastric juice by such large quantities.

HOW TO PURIFY WATER.

When water contains impurities, it should be boiled or filtered before using. Dangerous organic matter contained in it may be destroyed by the action of

powerful oxidizing substances. The best chemical purifier is solution of permanganate of potash; on mixing this crimson-colored fluid with impure water, it acquires a brownish color. Alum, lime, soda, and various other substances are used for purifying water, but they are much inferior for that purpose to the permanganate solution.

By filtration through animal charcoal, the greater part, and sometimes the whole, of the organic matter contained in water may be removed. One pound weight of animal charcoal is sufficient to purify from fifty to a hundred gallons of foul water; and when its powers are exhausted, they may be restored by heating the charcoal to redness for a few minutes.

Some authorities contend that charcoal does not perfectly remove the virus of cholera, nor, probably, that of any other disease, from water; and if contagious diseases are propagated by means of low forms of vegetable life, it is most likely that charcoal exercises no effect upon such organisms. There are, however, putrescent animal and vegetable matters in impure water, which, though not specific animal poisons, are yet capable of inducing disease if permitted to enter the body: these substances are unquestionably destroyed by charcoal. By boiling water for about ten minutes, the vitality of any living things—germs of minute plants, fungi, animalculæ, etc.—contained in it is destroyed. When cholera or any similar disease is prevalent, it is therefore advisable to boil water before filtering it.

TEA AND COFFEE.

The property is common to many plants to yield their taste and virtues to boiling water. Various pleasant drinks have been devised in this way, none of which, however, equal in popularity tea and coffee. A vast amount has been written in praise and dispraise of these universally liked beverages. Their active principles are very similar, if not identical, and their effects on the system little different.

To most persons, used with that moderation which with all things and at all times is the watchword of hygiene, they are harmless, to some positively beneficial. The moderate stimulation they give the mental powers, is rarely followed by a corresponding depression of spirits, or nervousness. Whenever this *is* the case, it is a sign that the quantity has been excessive. There are a few persons who should touch neither. If they feel giddy, or disagreeably excitable, or depressed, or taste the flavor for some time afterward, they should let them alone. But they should not insist that that which disagrees with them is harmful for all the rest of the world. This is very narrow reasoning.

In hot climates and swampy regions a cup of tea or coffee taken in the early morn protects from the malarial poison in the atmosphere, and fortifies the system against excessive heat. The soldiers in our war felt more keenly when the ration of coffee gave out, than any other deprivation. While it cannot

take the place of food, it can temporarily silence the demands of the system.

But it is a slow poison, say some. "Very slow," replied Fontenelle, the French academician who reached the age of a hundred years; "I have used it regularly for some eighty years, and it has not yet killed me."

It is wise to use it but once a day under ordinary circumstances, and this at the morning meal. Tea seems more appropriate in the evening. The effect of either on digestion is not marked, and what there is, is due much more to the temperature of the fluid than the vegetable principle it contains. Drinking it too hot, and in large quantities, will very readily disturb the stomach.

CHOCOLATE

Is an actual food, not merely a stimulant. It is manufactured from the fruit of the cacao tree, by grinding it with sugar and some aromatic substance, usually vanilla. The restorative powers it possesses render it peculiarly valuable to those whose nervous system is prostrated by anxiety, overwork, or the excesses of pleasure. It is less suitable to dyspeptics, for it requires some strength of stomach to digest it, especially when made with milk instead of water.

The relative power of these beverages to support life was once tested in Russia. Three condemned criminals were each given one of them, and nothing else. He who had tea lived the longest. But the tea given may have been the Tartar tea, which is prepared

by mixing tea-leaves, bullock's blood, and salt. So the experiment is not conclusive.

TEMPERANCE DRINKS.

The opposition to alcoholic drinks on the one hand, and the craving of the palate for something beyond mere water on the other, have combined in this country to invent a number of beverages which are usually known as "temperance drinks." We would gladly see the list of them much lengthened. The most popular and thoroughly American is

SODA-WATER.

This is simply ordinary water charged with carbonic acid gas to render it sparkling, and flavored with various syrups and creams to the taste. There is no soda in it, and the name is owing to the fact that carbonate of soda was originally used to obtain the carbonic acid gas. Now it is manufactured by acting on ground limestone with sulphuric acid.

Soda-water, when carefully prepared and used with pure syrups, is a harmless beverage if taken in moderation. As, however, some of the syrups are compounded of injurious ingredients, it should be used with caution. We have known a number of instances of bowel complaint brought on by its use.

LEMONADE

Is a universal favorite in warm weather. Its use is refreshing and harmless when taken in limited quantities. The "lemon syrups," however, from which it is often prepared, are usually based upon tartaric acid, and are not to be approved from a sanitary point of view. The simpler sweetened water—*eau sucré*—of the French is still more innoxious. A cheap and wholesome substitute for lemonade in farming districts is made by mixing vinegar and molasses with water in such proportions as suit the taste.

ICED TEA

Has recently come into vogue as a summer drink. It is eminently restorative when the system is enervated by intense heat, but the alleged injurious effects of tea would certainly not be diminished by consuming it cold, and by the tumblerful.

The *beers* prepared by fermentation with yeast and flavoring with ginger, sassafras, and roots of various kinds, are simple and agreeable compounds. *Mead*, made by allowing a mixture of honey and water to pass to the stage of fermentation, is also, when skilfully compounded, a salubrious and very pleasant beverage. It is a pity that the art of manufacturing it has fallen almost into decadence since the old days when it was deemed a beverage worthy of the gods and heroes who quaffed it in the halls of Valhalla.

Vinegar, impregnated with the flavor of raspberries,

blackberries, and other ripe fruit, forms by mingling with water a most grateful and luscious summer beverage. It is especially appreciated when the system is feverish.

This list will serve to show that if persons resort to alcoholic beverages, it is not because there are no pleasant drinks, cooling, well-flavored, and cheap, with which to replace them. The advocates of abstinence would accomplish much by devising and perfecting such beverages, and placing them as easily within the reach of those who patronize the dram-shops, as the destructive liquors are which they now imbibe.

ALCOHOLIC BEVERAGES.

Sugar we have said is starch under a different form; and now pursuing this same substance further through the magical transmutations of chemistry, we find it reappear as *alcohol*. For this is a direct product of the fermentation of fluids containing sugar. It is at the basis of all malt, vinous, and distilled liquors, and this it is which imparts to all of them their intoxicating properties. Their effect upon health is one of the most important problems of sanitary science, and deserves careful consideration.

Malt liquors are manufactured by fermenting an infusion of barley; wines from the juice of the grape; and distilled liquors by distilling fermented infusions or wines. The amount of pure alcohol they contain varies much. In lager beer the one-twentieth part, in wines of average strength the one-sixth part,

while in brandies, whiskey, and gin fully one-half is alcohol.

In spite of the vast number of experiments which have been made, and the amount of writing which has been done upon the subject, medical men are far from agreed as to the effect of these beverages, taken in moderate quantities and at stated periods, upon the system. One party believes that they are at all times and under all circumstances unnecessary and injurious; the other maintains that they act as food, that they retard the waste of tissue consequent upon severe muscular or mental exercise, and that they are, therefore, conducive to health, to long life, and to the maximum use of one's powers.

The reason of this diversity lies as much in prepossession and prejudice as in observation. Like the effect of tea, coffee, and tobacco, that of alcohol differs very much in different constitutions. There are those to whom a small amount daily is for the time being apparently indifferent, and others, again, whom it harms visibly even in the smallest quantities.

As a tonic in enfeebled states of the system and in prostrating diseases, it is sometimes recommended by physicians. At times when there is a severe and temporary strain upon the muscular and nervous energies it is universally used to increase the powers.

Since the discovery of the process of distilling, which is a comparatively modern invention, the concentrated forms in which alcohol has been brought within the reach of all, has led to the most deplorable abuse of it. The physical debasement and moral

degradation it has caused far outweigh any benefit claimed for it, and call for the most strenuous endeavors on the part of the wise and good to limit or to do away altogether—were such a thing possible—with its use as a beverage. The evil is not merely that the even temperate use of distilled liquor is injurious to most men, which it is, in that it lays the system open to disease, and exposes the user to subtle temptation. But we cannot and we must not conceal from ourselves the frightful insidiousness of this indulgence, the strong tendency to transgress the bounds of moderation, the fatal craving which in some is an inherited vice, the fact that even very small quantities weaken temporarily the reasoning faculties, and the well-nigh universal adulterations with poisonous materials to which alcoholic drinks of all kinds are submitted.

These considerations are of the very gravest weight, and fully convince us that, as there is no practicable medium between the present excessive use of alcohol in this country and total abstinence, the public health—not to speak of morals—would vastly gain by absolute prohibition of every description of alcoholic beverage. Applying this to an individual, we would say to him that a single excess proves that he is in danger, and he will greatly increase his prospects of health and life by resolutely abstaining from the use of alcohol in any form.

To those who must or will habitually make use of some stimulant, decidedly the best are the malt liquors and the lighter wines. The former contain some slight amount of nutriment. Lager beer, the

mildest of them, containing but three or four per cent. of alcohol, is very largely consumed in this country. When properly made, it is tonic, slightly laxative, palatable, and, in any moderate quantity, not infoxicating. In some, however, it causes a flushed face, fulness in the head, and acidity of the stomach, and these should renounce it. Ale and porter are similar in manufacture, but nearly twice as strong.

ON WINES.

The majority of so-called foreign wines obtainable in this country are manufactured from coarse whiskey and the lowest grades of French, Spanish, and German wines, colored and scented to imitate the most famous brands. This branch of applied chemistry has made astonishing progress within a score of years, and it draws its resources from most unexpected quarters. For instance, one of the most highly prized oils for giving a bouquet to champagne is extracted from petroleum! These frauds not only delude purchasers into buying articles at ten times their value, but are a deliberate attack on public health, for most of these artificial brands of wine contain ingredients highly irritating to the stomach.

The native American wines, such as are grown in large quantities in the Ohio valley, in Missouri, and in California, are nearly equal in flavor to the genuine imported brands of the best quality, and can be obtained of much greater purity. That their use will

diminish the tendency to drunkenness is a doubtful assertion, which we would hesitate to indorse.

IS ALCOHOL BENEFICIAL?

The pretence that the use of alcoholic beverages enables man to support with more fortitude the extremes of heat and cold, or to accomplish more severe labor, has been repeatedly and clearly proven false. Captain Parry and Dr. Kane, who passed winters in the coldest regions of the frigid zone, agree that those who abstained entirely from alcoholic drinks suffered the least and bore exposure the best.

On the other hand, an American traveller who crossed the Sahara desert from Algiers to Timbuctoo in 1859, relates that *every one* who, to assuage his thirst, mingled wine with the foul water carried in the goat-skins, died on the journey or even after reaching its termination. While those who imitated the rigid abstinence of the Arab guides alone survived.

The most muscular and enduring frames are not those heated and stimulated with liquors. This is so well known, that prize-fighters and wrestlers, classes accustomed to indulgence, resolutely refrain from all stimulants when training for a contest. The porters of Smyrna, Calcutta, and the Chinese ports, who carry loads of 400 and 500 pounds all day long from the wharves to the storehouses, use no wine or distilled liquors.

THE CURE OF DRUNKENNESS.

Many a wretched victim of the degrading habit of intoxication would gladly escape his ignoble thraldom, but has not the courage. He makes now and then an unavailing effort to "taper off," or, ceasing entirely for a while, is driven back to his accustomed stimulant by a dreadful nervousness, a feeling of weakness, an impossibility of sleeping, and a gnawing sensation at the stomach. More frequently than many are willing to suppose, it is a physical craving which drives the drunkard back to his cups.

Altogether too little attention has been given this important subject. The question of the cure of drunkenness has been regarded too exclusively as a moral one, and temperance lecturers have appealed solely to the will-power of their hearers. They should be prepared to explain what can be substituted for the liquor during the first few months of abstinence, until the system has accustomed itself to the want of the usual stimulus. By this means, they would potently aid those who renounce their excesses to keep their pledges, and it is this information which we propose to give.

Before proceeding to do so, however, we will glance at several plans of cure which have from time to time been advocated. The first took its rise in Sweden. It is to give the sot a surfeit of his favorite tipple; to allow him to have it in any quantity; to impregnate with it every article of food and drink he consumes; to have its odor constantly about him. This is said

after a few weeks to disgust him utterly and permanently with it.

A second plan is to place secretly in the liquor some tartar emetic or other nauseating drug, with a view of rendering the fluid forever distasteful. This, in the hands of an ignorant person, may prove a dangerous procedure.

Thirdly, the proposal of a residence for some months in an inebriate asylum remains for consideration. These institutions have been organized on an extended scale in many States, and their reports record many cures. The inmates are not positively deprived of their liberty, though they are under restrictions; and the pure and elevated associations with which it is sought to surround them, as well as the judicious medical supervision under which they live, combine to render a reform commenced under such auspices complete and permanent. For those who can afford the time and money of such a retirement, it is highly to be recommended.

But our immediate purpose is to inform our readers what course of life the hard drinker must adopt when he ceases from his self-destructive habit, and determines to renounce it forever. In the first place, he must renounce it at *once and altogether*. Under no pretext and in no contingency must he taste a drop of alcoholic drink. Whatever symptoms arise, he must combat by other means.

His body long used to powerful stimulant will feel sorely the want of it. Its place must be supplied in the first place by an abundance of animal food. Fresh

meat should be taken three times a day, either as flesh, or as beef-essence, or soup. Milk should be drank freely, and several cups of strong coffee may be taken in the morning. A strong infusion of Peruvian bark, of quassia, or some other vegetable bitter, should be drank at the hours when the drams were wont to be indulged in. The body should be exercised every day up to the full point of fatigue, and idleness and inaction, whether of body or mind, conscientiously shunned. The free use of tobacco invites stimulants by depressing the nervous system, and must be renounced. The old habits and associations, whatever they were, which favored excess, must be abandoned, and the greatest regularity in hours of meals and of rest be cultivated.

The wearing sleeplessness which often accompanies the sudden cessation of stimulants is one of the most dreaded difficulties to combat. It can be effectually overcome by swallowing at bedtime a teaspoonful of ether in a half tumbler of water.

As soon as by these precautions the system has recovered its tone, the tonic, the coffee, and the ether are to be dropped. This will generally be in two months, and the battle will have been fought and victory gained without the struggle and the danger of defeat which attend generally in perilous force.

THE USE OF NARCOTICS.

Our chapter would be incomplete, did we neglect to treat of a class of substances which are neither food

nor drink, and yet which are consumed in immense quantities throughout our country and the whole world. We refer to tobacco and opium.

TOBACCO.

Hardly any fact in history is more strange than the rapid and universal extension of the use of tobacco after the discovery of America. Within these few centuries it has spread over the whole civilized and uncivilized world, and is as highly prized by the fop of the fashionable club, the barbarian of Central Africa, or the camel-driver of the Persian desert, as by the red man who was the original discoverer of the luxury, and who traces its introduction to the gods themselves.

Like alcoholic beverages, this narcotic weed has had and still has its bitter opponents, and its strenuous defenders. Kings have fulminated their decrees against it, and their subjects have submitted to the severest penalties rather than renounce it. So ineradicable and universal is the love of it, that one might be inclined to regard it as an indication of a want of the system, demanding satisfaction.

Nevertheless we have proof of the most convincing kind that, as frequently indulged in, it leads to numerous and obstinate complaints. This is, be it understood, in consequence of its immoderate use. The increase of its consumption within the last thirty or forty years is actually alarming. In France, where it has long been a government monopoly, and the amount consumed carefully estimated, the quantity taxed in 1868

was more than five times that in 1832! The difference was chiefly in segars and smoking-tobacco, the habit of snuffing being on the decrease, and chewing being almost unknown in Europe. What are the consequences? One of the most eminent of French physicians, Professor Fonssagrives, says that it has been productive of very manifest ill results. The tendency to dyspepsia, coldness of the extremities, various forms of palsy, the notable augmentation of insane persons, and the numerous nervous diseases among smokers brought to the attention of medical men, prove conclusively that we have here to do with a positive poison.

Especially its influence on the intelligence demands serious consideration. If any of its effects are well established, one is that it debilitates the memory. Hence it is peculiarly injurious to students, who exert this faculty more than any other. In the public schools it is constantly observed that the boys who can commit the readiest, and have the most retentive powers, are *not* the smokers.

Then, too, the most ardent admirer of the Virginian weed cannot escape the overwhelming evidence that it acts definitely and disagreeably upon the nerves of special sense. The taste and smell are rendered obtuse, the eyes are weakened, and a peculiar, permanent, ringing noise in the ears is caused.

To sum up our charges against the "weed," we may add that recently Dr. Hoffman, of San Francisco, attributes to it the unpleasant power of producing baldness and premature gray hairs, and supports his assertion by strong cases and arguments.

These well-attested consequences follow, one or all, upon the *immoderate* employment of tobacco. In moderation, it does no harm to most constitutions, and is to some apparently beneficial. As to what is moderation, and as to who should and who should not allow themselves to use it, we shall not attempt to say, for here, as in so many other indulgences, every man must be "a law unto himself." But we do, most unequivocally, *condemn its use in any form by growing boys.* It will be certain to do them injury.

OPIUM.

The other narcotics, the opium of the Turks and Chinese, the hashish of the Persians and Arabs, the kava of the Polynesians, and the cocoa of the Peruvians, are all of them, fortunately, not in use in this country to any great extent. None of them benefit the health, all of them injure the mental faculties, and the wise will shun their cultivation altogether.

The only one of them to which we need give attention is the first mentioned.

OPIUM-EATING AND ITS CURE.

The seductive pleasures of opium-eating have unfortunately been rendered familiar to the public by more than one author of eminence, and many have been led into the habit by their descriptions. Others, commencing the use of the drug to allay pain, have gradually fallen irretrievably under its sway; while there are not wanting many who deliberately seek in

its unreal visions solace for the miseries by which they are surrounded. Druggists in the over-crowded and filthy districts of our great cities have informed us that the consumption of the drug by the lowest classes of the population is enormous.

Such indulgence is condemned by every precept of physiology and every suggestion of worldly wisdom. Soon the wretched victim finds the drug can produce no longer pleasurable sensations but only torment; and he must determine quickly to renounce it utterly or to die.

When he gives up the use of it, he must for a time supply its place, not by smaller doses of some other preparation of the drug, as has been recommended by some, but by the same methods which we recommend under the cure of drunkenness, that is, by tonics, by strong coffee, by constant exercise carried up to real fatigue, and by the use of ether at night when required to produce sleep.

Sometimes a violent diarrhœa sets in when the opium is suspended. It is better not to check this at first, but seek, by keeping in bed and the use of simple food, to allow nature to discharge from the system what is no longer of use there.

HUNGER AND THIRST.

When the system is in need of food, we are apprised of it by the sensation of hunger; when of fluids, by the sensation of thirst. In moderate degrees these monitors are agreeable visitors, lending a zest to

our meals and the best condiments to food. In excessive degree, they become dreadful torture, and, if unsatisfied, soon wear out the body.

We cannot say with precision how long a person can live without nourishment. The young and strong fail first, and with them seven or eight days brings the fatal termination. The old and the feeble, who need and care less for food, may survive several days longer. It has been ascertained, however, that whenever the weight is reduced two-fifths, then death ensues. That is, for example, if a person weighing a hundred pounds starve himself until he has lost forty pounds, he dies. On an average, this occurs in about seven days.

Extraordinary narratives appear from time to time in the public prints of persons who, for a long period, have lived with little or no food. As a rule, these cases rest on deception. A famous one, called the Welsh fasting girl, recently attracted general notice in England. A young woman pretended, for a number of months, to have partaken of no nourishment. She seemed in good health and condition. Several physicians became interested in her statements, and, to convince themselves, employed watchers to remain with her constantly. During this period she died, either from starvation or disease, and the scientific men were summoned into court to answer a charge of murder!

The instance of a Scotch woman, Janet McLeod, is one of the most authentic. The accounts represented that she lived four years without food or drink. She

was epileptic and bedridden, and passed most of her time asleep. Subsequently she commenced taking nourishment, and recovered.

Naturalists are familiar with the fact that some of the lower animals, especially reptiles and insects, can exist for months and years without any nourishment. Mr. Baker relates that he placed a stag beetle in a close box and left it shut up for three years. On opening the box at the end of that time, it flew away.

Persons who are exposed to hunger and thirst should be acquainted with the devices for relieving those sensations. The Indians and Caffirs are accustomed, when short of food, to fasten a girdle tightly over the stomach. This is found to lessen the sense of hunger. They also use tobacco for this purpose, which, being a narcotic, quiets for a time the cravings of the stomach. Chewing grains of coffee exerts a similar effect.

When he expects to undergo such deprivations, the Indian hunter carries with him a small quantity of dried slippery-elm bark. A piece of this, half an inch square, is placed in the mouth, and relieves to an astonishing degree the sharpness of the sensations. Hunters have also learned that to hold a bullet in the mouth slightly assuages thirst. When short of water, the mouth should be kept closed, and but little attempt at talking should be made.

TO APPEASE THIRST.

Dr. Franklin recommended sailors who are exposed to thirst to wet their clothing in sea-water several times a day, believing that absorption through the skin would take to some extent the place of drink. The suggestion should only be practised, however, when the weather is warm. A tepid bath will relieve thirst, but a cold one will not.

After a period of intense thirst it is both unsatisfying and perilous to quaff deep draughts of cold water. It will not quench the thirst, but rather increase it. If, instead of cold water, a little lukewarm tea or milk-and-water be drunk, permanent relief will be attained; or if, instead of cold water, a lump of ice be taken in the mouth, and allowed to melt there, the effect will be agreeable. Juicy fruits and plants are very grateful in extreme thirst. Several of the larger species of animals, the steinbuck and the porcupine for example, satisfy their thirst altogether by browsing on succulent vegetables. The use of any alcoholic liquor for this purpose is futile, as, after a momentary relief, the sensation returns with redoubled intensity.

The amount of liquid we require is very much a matter of habit, as any one can see by recalling the differences among his acquaintances. There are many persons who almost never drink except at meals, and then but very little. Others, in the same conditions of health, will be swallowing a tumbler of water every hour or two through the day. There was a student at the University of Toulouse some years ago who

asserted he hardly knew what thirst was, and passed several months without drinking. The large proportion of water in vegetable food, which he chiefly used, and the well-known power of habit, render this statement quite credible.

The natives of New Caledonia and some of the South American tribes swallow a kind of clay to allay hunger. The habit is also said to be found in some of the Southern Atlantic States. Captain Riley, in his Narrative, states that when suffering from hunger and thirst on the African desert, he found relief by swallowing dried dates whole.

CHAPTER IV.

CLOTHING AND THE TOILET.

CONTENTS.

Material of clothing: Wool—Silk—Cotton—Linen. The color of clothing—Covering of the head—The neck—Underclothing—Boots and shoes—Overcoats. The toilet: The teeth—The hair—The skin.

AS it is now, tailors and milliners decide on what we shall wear. It might be better, did we call to the council wiser heads than theirs, and consider health as well as good-looks. For, the clothing we adopt influences most materially the condition of our bodies. What the advice of the physician is about it, we can say in a few words; and first as to the

MATERIAL OF CLOTHING.

A Prussian general of great age was asked the secret of his long life and uniform health. "I drink water and wear wool," was the reply, and it embodies two sound principles.

Wool protects the system more completely from sudden changes of temperature than any of the other materials of which clothing is commonly made. It is not so readily saturated by moisture, and when moist does not impart the same sense of chilliness to the

skin as linen and cotton. It stands pre-eminent, therefore, as a material for clothing in cold and changeable climates.

Silk is more expensive, and to some skins more irritating than wool, owing to the amount of electricity it develops. It is warm and comfortable to most persons.

Of all the substances used for clothing, *cotton* is the most universally used. When woven thick and with a floss, it is warm, and suited to quite cool weather. As it is softer to the skin, many persons prefer it for under-clothing to wool even in winter, but it is less desirable than the latter for aged and delicate constitutions.

Linen, which is manufactured from flax, is of all material the lightest, the most agreeable to a sensitive skin, and the coolest in summer. It absorbs the perspiration rapidly, and allows the heat of the surface to pass off promptly.

Whatever material is chosen, the under-clothing should be changed at least twice a week, except the under-shirt, which it is better not to change more frequently than weekly. Garments should always be well dried and aired before putting them on, and should be loose and easy.

THE COLOR OF CLOTHING

Is not immaterial to health, as might at first be imagined. Dr. Franklin cut a number of pieces of cloth of equal size but different colors, and laid them

on the snow one sunny day, to see under which of them the snow would melt quickest. As he anticipated, he found quite a difference, the snow melting much more rapidly under the darker colors than under the lighter ones. He deduced from this that it is wiser to wear dark clothing in winter, when we wish to obtain and retain all the warmth, and light colors in summer, when we desire to suffer as lightly as possible from the high temperature. Philosophers since his time have endorsed his opinions, and they are in a general way acted upon. The difference is considerable. Under a bright summer sun the air in a closed jar covered with black cloth will be 12° Fah. hotter than that in a similar jar covered with white linen. This large reduction of the heat we must put in our favor by shunning black hats and black suits in the hot season.

COVERING OF THE HEAD.

The traditional "stovepipe hat" it seems impossible to displace from popular favor. And, indeed, it is doubtful whether the attacks against it are all well founded. When constructed with a ventilator, as is frequently seen, it keeps the head cool, and protects it from injury quite as well as any of the various substitutes that have been devised. Felt hats are deservedly popular for travelling and exposed pursuits, and cloth caps also. The latter should have visors of sufficient size to protect the eyes from the rays of the sun. The eastern turban, which, excellent as a shield against a

tropical sun, is deficient in this respect, is to blame for the very frequent inflammation of the eyes in those countries.

Women wear their hair longer, and as a rule to advanced age. This allows them to follow the vagaries of fashion with more impunity, but the insufficient protection afforded by the modern bonnet is proven by their frequent neuralgias and headaches.

THE NECK

Is a very sensitive part of the body and a frequent sufferer from the weather. Coughs, sore-throats, quinsies, and hoarseness are too common in our climates. There is much difference of opinion and of custom about clothing it. The delicately nurtured young lady deliberately promenades the streets with a low-cut dress and bare neck when the hackmen and coachmen are buried up to their noses in woollen mufflers.

Though the ladies are imprudent, the hackmen are hardly less so. It is as grave an infraction of sound hygiene to wear too much as too little clothing. The neck should not be swathed in warm wrappers, nor heavy stocks, nor constricted by a tight collar. The latter should be loose, the neck-tie of light silk, and if, instead of wearing the muffler, the neck be thoroughly bathed in cold water every morning, the chances of catching a sore-throat are reduced to the minimum. We have, with difficulty, persuaded some persons who complained much of delicate throats,

to adopt this "hardening" process, and with gratifying success. But it must *always* be commenced in the autumn, not after winter has set in.

Any constriction about the neck, as of a tight collar or cravat, predisposes to vertigo, headaches and apoplexy.

UNDER-CLOTHING.

The under-clothing, as that which is next the skin, should be soft, absorptive, and scrupulously neat. Merino, silk, or wool is desirable in cold, linen in warm weather. The under-shirt should be of considerable length, covering completely the abdomen. It is related of the eminent English admiral, Lord Napier, that he delayed his ships several days on one occasion, in order to obtain under-shirts for his men, of sufficient length, those furnished being too short by a hand's breadth. The result was that on reaching the West India station, many of the sailors of the other ships suffered from dysentery, but those of his escaped entirely. The damp air of a summer night is very apt to chill the bowels and lead to this complaint, unless they are properly clothed. We believe it better in hot weather to wear under-shirts of some light fabric, like gauze merino.

Flannel drawers in cold weather are an efficient protection. Women especially, whose clothing offers so little protection against the cold, should invariably wear them in winter.

Stockings should be worn the whole time, made of cotton in summer, and of wool, merino, or silk in

winter. Some find thick cotton warm enough in winter, but the feet are much more liable to be frosted with them.

BOOTS AND SHOES.

There is a constant outcry against shoemakers, and a universal grumbling about corns, but no real attempt to escape their tyranny. The obstacle is vanity. A foolish notion prevails that in regard to feet the Chinese ideal is far ahead of the Grecian. The latter maintain that the foot should equal the eighth part of the height; the former assert it should be squeezed into the utmost possible diminutiveness.

Following this hint, shoemakers have chosen a certain shape to which all feet are pressed, and then reduced to the minimum of size. Consequently the chiropodists flourish, and corns, bunions, ingrowing toe-nails, and hang-nails—all complaints utterly unknown to the natural man—give them plenty of employment.

The true shape of the shoe should be that of the foot—low heels, very slightly arched, broad at the toe, the sole a quarter inch longer and broader than the foot when expanded by the weight of the body upon it. But who has the courage to wear a shoe of this shape? And where is the shoemaker who is willing to peril his reputation by making them? We have sought for him in vain.

Low shoes are less desirable for walkers than those which fasten well up around the ankle, and support

that joint. Boots, except for those who wade in mud or slush, have no superiority over shoes.

Overshoes of vulcanized rubber are exceedingly popular in our country. They are highly objectionable for constant use, and should be reserved for occasions when without them the feet would be exposed to dampness. We have known persons with delicate lungs who found it much more conducive to health to use overshoes of leather than of rubber. The objection to the latter is that it confines the perspiration, and keeps the foot in a perpetual moist air-bath, and thus renders it very sensitive to exposure.

OVERCOATS.

The same objection applies to rubber overcoats. They are an unsuitable garment, and an uncomfortable one. When used at all, they should be quite loose, somewhat like a blanket or a "poncho" (a blanket with a slit in the centre, through which the head is thrust). This allows the heat and moisture to pass off from the body, while it protects from rain. For invalids, first-class English pilot cloth is much better than any impervious material for an outside wrap.

Dr. C. J. B. Williams has suggested a device for keeping warm worth remembering. He says: "One cold winter night I had to go a long journey, and the stage being filled, was obliged to ride on the outside, although insufficiently clothed for the exposure. Reflecting on the great loss of heat manifested in the steaming breath of myself and fellow-passengers, I

endeavored to save a portion by entirely covering my face and head with a silk pocket-handkerchief, the lower ends of which were closely tucked inside my buttoned coat. The result was an increase of warmth, not in the face and chest only, but even in the extremities, more comfortable and diffused than an additional greatcoat could have produced."

THE TOILET.

We have treated very fully in another work* the laws of health which relate to the toilet, and discussed at length both the care which sound hygiene deems should be observed in respect to it, and also those many little arts which heighten the charms of the person without detracting from their well-being. We have there shown that health, rightly understood and cultivated, is synonymous with beauty, and that whoever would have this latter, must begin by the assiduous cultivation of the former.

We do not propose to rehearse in full in this connection the instructions we have there given. We must refer those who would be fully acquainted with this attractive and important department of hygiene to what we have there said, and confine ourselves here to giving some general directions on principal points, and to reiterating the fact that nothing is more essential to sound health, and the prospect of long life, than constant and minute attention to the cleanli-

* The Laws of Health in their Relation to the Human Form.

ness and the good order of all the external portions of the body.

The three important branches of the hygienic care of the toilet refer to the teeth, the hair, and the skin. Some writer calls these three "the tripod of health and beauty," and we must grant that his fanciful expression conveys a solid truth. We shall devote some space to the consideration of each of them, confining ourselves to direct and practical instructions.

CARE OF THE TEETH.

The teeth should be thoroughly washed morning and evening, and brushed with a *soft* brush. After each meal the mouth should be well rinsed, and any fragments of food remaining between the teeth extracted with a *quill* toothpick. Pure soft water should be chosen for the purpose, whenever attainable, and none is purer or softer than rain-water.

When a tooth-powder or tooth-wash is desired, it should not be purchased at the stores, where an exorbitant price must be paid for an article which may prove corrosive and injurious, but a simple, cheap, and useful one can be prepared from one of the following receipts.

For a tooth-powder:—

Take of—
Prepared chalk, seven drachms.
Powdered orris-root, one drachm. Mix.
Use every other morning.

For a tooth-wash, the following:—

> Take of—
> Tincture of myrrh,
> Tincture of cinchona,
> Cinnamon-water, equal parts. Mix.
> Use a few drops on the brush daily.

The above is particularly useful where there is a tendency to spongy and bleeding gums and to looseness of the teeth. It can be sweetened with a little sugar, if preferred.

Powdered charcoal is an excellent application for the teeth. It should be powdered very fine, and applied to the teeth by rubbing it upon them with a soft sponge on retiring at night. In the morning it should be rinsed from the mouth before the brush is used. It can readily be prepared by taking a clean, well-charred piece of wood charcoal, and powdering it very finely in a mortar.

Another pleasant and excellent powder is the following:—

> Take of—
> Sugar of milk, two ounces.
> Tannic acid, a quarter ounce.
> Red lake, a half drachm.
> Oil of anise-seed, five drops. Mix carefully.
> Use every morning.

The teeth should not be used to crack nuts, cut thread, etc, as many persons do use them, but they might with advantage be employed in chewing the food more thoroughly than most fast eaters do.

When decayed, it is economy in the end, as well as

comfort, to have them promptly filled by an expert dentist; and when quite gone, to replace them with an artificial set, for those who attempt to continue with decayed teeth or toothless gums will soon find their digestive powers give way, because the food has not been sufficiently masticated.

CARE OF THE HAIR.

There is a national tendency in this country to early loss of the hair. Sometimes this arises from impairment of the general health, for it is constantly observed that certain general diseases are accompanied by falling out of the hair. In such cases, local applications of any kind will be of no avail until the general trouble is removed.

Sometimes the cause is a disease of the skin of the scalp, which demands specific local treatment, the same as diseases of the skin on any part of the body; the consideration of this condition we will leave until we come to that part of our work which treats of skin diseases, and confine ourselves now to the care of the hair with a view to the *prevention* of disease and baldness.

Cleanliness is of the first importance. It should be secured not merely by brushing and combing, but by washing the scalp thoroughly with soap and warm water every week or two. The brush should be stiff, and reach the skin of the head. But the comb is designed chiefly for arranging the hair.

The ends of the hair should be carefully trimmed

about once a month. Very little need be taken off at a time, and if it is desired to maintain the hair long, only the twisted and dead extremities need be removed. This is a tedious occupation, but one which greatly increases the vigor and beauty of the growth.

In reference to tonics, washes, and oils, there is a great variety which have been urged upon public notice of late years, and several large fortunes have been accumulated from their sale. Usually these nostrums are of inferior and sometimes of poisonous ingredients. They should be shunned, and preparations of known composition, as good if not better than these, and costing but a third of their price, be used in their stead. We shall give a number of receipts for such.

For falling or loosening of the hair:—

Take of—
Whiskey, one wineglassful.
Glycerine, one tablespoonful.
Quinine, twenty grains.
Water, a half pint. Mix.
Rub on the scalp every morning.

Another for the same trouble:—

Take of—
Castor oil,
Alcohol, each one ounce.
Spirits of ammonia, a half ounce.
Rose-water, one pint. Mix well.
Rub the head every morning.

Take of—
Alcohol, a half pint.
Salt, as much as will dissolve.
Glycerine, a tablespoonful.
Flour of sulphur, a teaspoonful. Mix.
Rub on the scalp every morning.

The following is also an efficient hair tonic:—

Take of—
Tincture of cantharides, one ounce.
Glycerine, a half ounce.
Oil of bergamot, twenty drops.
Water, a half pint. Mix.
Use as above.

Grayness of the hair occurs in different people at very various ages. In some it appears in youth, and at middle age they have the silvery lines thickly scattered over their heads. Others, again, retain the natural color of both hair and beard to a very advanced age. This does not seem to have any reference to strength of constitution or of the hair itself.

It is a familiar fact, however, that anxiety, fright, grief, and terror blanch the hair with great rapidity, even causing a very perceptible change in the space of a very few hours.

There are no known means by which the hair can be prevented from turning gray, and none which can restore it to its original hue, except through the process of dyeing. The numerous "hair color restorers" which are advertised are chemical preparations which act in the manner of a dye or as a paint, and are nearly always dependent for their power on

the presence of lead. This mineral, applied to the skin for a long time, will lead to the most disastrous maladies—lead-palsy, lead-colic, and other symptoms of poisoning. It should, therefore, never be used for this purpose.

The following preparation will gradually darken the hair, and has no bad effects:—

Take of—
Blue vitriol (powdered), one drachm.
Alcohol, one ounce.
Essence of roses, ten drops.
Rain-water, a half pint.
Shake together until they are thoroughly dissolved.

CARE OF THE SKIN.

The skin requires little special attention to preserve it in a healthy condition, beyond keeping it clean. This should be done by regular bathing and rubbing with a coarse towel or flesh-brush until a pink hue is produced.

The importance of attention to the skin will be readily understood, when it is considered that it is one of the most important avenues through which worn-out materials are discharged from the system. Unless it is maintained in a wholesome condition, the internal organs are over-worked and clogged, and the general health is impaired.

The bath should be taken daily in cool or tepid water, and the body be thoroughly dried. Soap should be employed at least once a week. The shower-bath

is only adapted for persons of a vigorous constitution, as on others it produces too great a shock.

When the skin is liable to crack and chap after bathing, a tablespoonful of glycerine added to the water will usually prevent it.

When the conveniences of a bath-tub or similar appliance are not at hand, a large sponge can be used with which the body can be rubbed down. In some manner, daily bathing should be practised, as it is justly regarded as one of the most effectual preservatives known against disease of all kinds.

CHAPTER V.

ON HEALTHY DWELLING-HOUSES.

CONTENTS.

The choice of a building site—Building material—The cellar—The upper stories—Drainage and waste products—Light and means of lighting—Artificial light—Dangerous oils—Effect of artificial light on air—The ventilation of dwellings—Means of warming—Paper-hangings—Furnishing a house—The kitchen and its furnishing—Newly-built houses—Old houses.

AN Italian proverb says that the man who has not built a house, written a book, planted a tree, and begotten a child, has not fulfilled his whole duty to his race. But he who builds a house without having a due regard to the laws of health in its construction is much more to blame than he who leaves that obligation altogether unfulfilled. For certain it is that a large percentage of sickness arises directly from ill-constructed dwellings.

To enter at length into the hygienic considerations to be regarded in building or buying a residence would require an amount of space and a minuteness of detail which we cannot spare in this connection. But the chief and vital points ought to be familiar to every head of a family, and our object of instructing how to prevent disease would be but partially accom-

plished, were we to neglect giving somewhat full instruction on this exceedingly practical point.

We shall first call attention to

THE CHOICE OF A BUILDING SITE.

Those who have the choice of a place of abode, and who seek health above other things, should live in the country. If inclination or necessity lead them to the city, they should select a dwelling in a cheerful, open, elevated suburb; or in a wide street and near a square.

In selecting a site, the natural drainage must be remembered. And here a knowledge of the texture and stratification of the underlying rocks is important. Clay is less healthy than porous, gravelly soils. A damp soil is one of the most common causes of consumption, bronchitis, and similar complaints. It also gives rise to attacks of rheumatism. Dry impermeable soils are the most healthy; next to these, dry soils which allow ready passage to the water.

The *elevation* is of very considerable moment. Low-lying situations, especially those along river-bottoms and near their mouths, are, as a rule, unhealthy, and persons living in them are more liable to the attacks of epidemic diseases. During the visits of cholera to our great cities, it was quite constantly observed that the number of deaths steadily diminished as the height of the ground increased. Consumption is asserted by some writers never to originate above a certain height above the level of the sea. As a general rule, low-lying places are colder than the

neighboring hill-tops in winter, and hotter in summer. They are peculiarly liable to fogs, and suffer first from the autumnal frosts.

A prudent builder will avoid choosing *made ground.* This has usually been filled in from the refuse of empty lots, dust-bins, and cellars. There is no doubt but that its effects on the health are deleterious. Certain maladies, like scarlet fever and typhoid, are more dangerous and obstinate in houses built on made ground. The slowly decaying accumulations of organic matter it contains must tend to undermine the health.

BUILDING MATERIAL.

Wood, brick, and stone are the chief materials used in the construction of dwellings in this country. The decision as to which should be selected is not without hygienic interest. Stone houses are notoriously damper than those which are frame or brick. Their walls are given to "sweating," that is, the atmospheric moisture condenses upon them and trickles down, producing dampness and mouldiness. Serpentine stone, which is a better conductor than other varieties, is free from this objection.

Frame houses are liable to early decay, and to conflagration, and are not always so easily warmed as others. In many cities their construction is forbidden.

Neither material combines so many advantages, and is so free from disadvantages, as brick. It answers all the purposes of a cheap, sanitary, and

abundant article for the construction of residences. And where no especial fitness decides for stone or wood, it is usually preferred.

THE CELLAR.

Every house should have a cellar, which should extend under every one of the ground floors. There is no economy and there is imprudence in laying joists directly upon the soil or immediately over it. Even bedding them in mortar is an inadequate step.

We have repeatedly known families to suffer year after year from low fevers, from no other cause than the exhalations from beneath their kitchen floors.

The cellar should be not less than seven feet high, with windows on each side which open to the air.

The windows should be one-third above the level of the ground, and so constructed as to be easily opened.

The cellar floor should be of mortar containing plenty of lime, or, still better, of cement, and the walls should be either plastered or cemented. The ceiling should be "rendered," that is, it should be plastered *between the joists*. These precautions, though seemingly minute, are by no means superfluous. It has again and again been demonstrated that typhoid and typhus fevers have proceeded directly from emanations of the soil or the sewers entering the cellar, and thus gaining admittance through the house. The entrance of water to the cellar is a frequent cause of

sickness, and must be prevented. No old well or dirt-receptacle should be allowed.

As the cellar is the usual storehouse for roots and vegetables, it should have bins appropriately fitted up for keeping them, and the housekeeper cannot be too solicitous in preventing the accumulation of decaying materials of any description. Several large lumps of fresh-burnt quicklime should be laid on the floor, so as to absorb the moisture and purify the atmosphere.

THE UPPER STORIES.

In the better class of dwellings in England and on the continent of Europe the basement or ground floor is not occupied by the family, but is used for the kitchen, storerooms, pantry, and dining-rooms. This is a prudent measure in a damp climate, as the first floor is the coldest and dampest in the house, and the most exposed to impure exhalations from the cellar and neighboring soil.

Houses with what builders call an "English basement," that is, with the first story low and but slightly raised above the ground, are becoming quite popular in our cities, and when the rooms above are exclusively adopted for sleeping and sitting purposes, they are to be preferred in crowded localities.

Many French dwellings have a still lower story above the basement, called the *entre sol*, usually assigned to the servants, etc., so that the family themselves occupy chiefly what we would call the third floor. They gain by this arrangement greater privacy and better air.

Bedrooms should not be chosen on the first floor of any house, and preferably the third floor should be selected. This is no less true of country than of city houses.

The height of each story should be at least nine feet in the clear, and range from this to twelve or fourteen. The purity of the air is greatly facilitated by a moderately lofty ceiling; but beyond the height last mentioned there is no advantage on this score, and there is a positive drawback in the difficulty of maintaining an equable temperature in winter.

Every house should have a garret or attic, with several windows, and extending over the whole of the upper story. The summer heats are then much less felt in the inhabited portions of the house, and the ventilation of the halls and stairways is improved by such an arrangement.

Inventors have exhausted their ingenuity of late years in devising roofing materials of various kinds, but, in point of health, nothing has been discovered superior to cedar shingles well laid. They exclude the rain, are warm in winter and cool in summer. Slate roofs, on the contrary, by absorbing the heat, greatly increase the temperature in hot weather, and decrease it in the cold season.

While we are on the roof of our house, we will naturally look to see that a lightning-rod rises above it sufficiently high to protect it against the electric discharges, and that it is well insulated by means of glass or horn rings as it passes down the wall. The simple rule is that a rod protects the area of a circle the

radius of which is four times the height of the rod above the roof.

DRAINAGE AND WASTE PRODUCTS.

The researches of sanitary officers have conclusively shown that no cause of disease is more to be feared and provided against than the accumulation of waste products of various kinds in and near habitations. By these products we mean slops, garbage, dishwater, the contents of privies, sinks and sewers, dust, bones, etc. etc.

The high mortality in low-lying districts is to a great extent owing to the difficulty in removing these accumulations. No house can be healthy unless provisions are made for preventing vapors and gases being discharged from them into the atmosphere of or around it.

In towns the simplest and easiest way is to convey the more objectionable portion of the refuse into sewers by the action of water. The main sewer should never run under the house, for, should it happen to leak, sad results to health would probably ensue. Sewer-pipes should have a fall of at least two feet per hundred feet, and should be "flushed" from time to time by a full stream of water.

The water-closets should always be maintained in perfect order, and no pains spared to prevent bad odors or the escape of gas from them.

The "earth closet," which we shall describe in a later chapter, is well adapted for towns, villages,

country houses, and public buildings. But in cities with abundant water-supply it is not likely to supersede the more convenient water-closet.

The yard of a farm-house in this country often presents a large, unsightly, and foul-smelling cesspool, not far from the kitchen door, into which the waste water runs. Proprietors would consult both health and appearance by conveying the refuse in a covered drain to a distance of fifty or sixty yards from the house.

The more solid portions of refuse are, or should be, in cities carted away from the immediate neighborhood of the houses, and in country places should be used to make compost heaps for fertilizing.

Private sinks or cesspools in cities should be prohibited. Such action has already been taken in several of our large cities, and should be general. Their deadly vapors cannot fail to taint the atmosphere for yards around. Their overflow or leakage cannot be prevented; and their abolition has uniformly been attended with improvement of the general health.

On the other hand, the pollution of rivers by town sewage has become an evil of magnitude, and demands a remedy. One of the problems of the day is the "utilization of sewage." In London and elsewhere earnest attempts have been made to collect the various refuse products and the contents of the sewers, and employ them in the manufacture of artificial manures. These projects have met with partial success, but have not yet been so successful as to have been generally adopted.

LIGHT AND THE MEANS OF LIGHTING.

The ancient saying that "light is life" is abundantly confirmed by modern science. Nothing is better established than that this agent is essential to full health. The pale, flabby, and bloodless face of the inhabitant of a dark cell or a gloomy chamber contrasts painfully with the ruddy glow and firm flesh of the countryman who lives in the open air and the light of the sun.

We have to consider both the means of natural and artificial lighting when we examine a house.

In the first place, there should be no dark, windowless rooms in it. We have seen dwellings called "first class," with handsome stone fronts and carved steps, which contained chambers without a window! Such houses are dear at any price. Every room should give admittance to the sun at some hour of the day. "Shut the door to the sun, and you will open it to the doctor," say the Italians. "Sunlight," says Sir David Brewster, "is the life-blood of nature; without it, everything material would fade and perish."

"It is a personal duty," says this same philosopher, "to construct our dwelling-houses upon such principles and in such styles of architecture as will allow the sunlight to have the fullest and freest entrance, and to chase from every crypt, cell, and corner the elements of uncleanness and corruption which have a vested interest in darkness."

The practical application of this principle is to see that every room has one or two good-sized windows

from which the open sky can be seen and the sun's rays admitted. Houses which face the east or south-east have the best aspect, because in the morning the sun's rays penetrate to the front rooms, and in the evening the back apartments are exposed to its cheerful and vivifying influence. The front rooms of a house facing the south are in summer ever warmed by the direct rays of the sun, while the back rooms receive no share of direct light.

While we fully appreciate the beauty and comfort of a shady lawn, and shall have something to say of the hygienic value of trees hereafter, yet we are not in favor of having large trees with dense foliage *close to a house*. They keep its walls damp, harbor many insects, and shut out the light.

A French physician has given a striking illustration of the injury which shade-trees sometimes cause. On one occasion his attention was attracted by the obviously wanton mutilation of several large mulberry-trees, the branches of which had heavily shaded a school-room in which a number of girls received their education. On asking the reason for such destruction, he was informed that previously to the removal of the branches the gloom and dampness had visibly impaired the health of the scholars; while since they had been lopped away, a very favorable change had taken place in the condition of the girls, which could only be attributed to their exposure to the unimpaired light of the sun.

The sick do not recover so quickly in dark rooms as in those where direct light gains admittance. The

dark sides of streets are more frequently visited by the physician; and the northern wards of hospitals present more lingering cases than others.

In crowded cities, where narrow streets and high walls shut out the rays of the sun, there are many expedients resorted to, to increase the light in work-rooms, counting-houses, and offices. Metallic reflectors are often seen outside the windows, and often the gas must be lighted long before the sun goes down.

A simple architectural expedient will do away with the need of reflectors, and will illuminate the whole room as long as the day lasts. It is this: in place of the ordinary window-sash, which is always placed at a distance of three to six inches from the outer surface of the wall, and often still deeper, we substitute another in which all the panes of glass are roughly ground on the outside, and flush with the outer wall. By this simple means the light from the whole of the visible sky, and that reflected from the remotest parts of the opposite walls, will be introduced into the apartment, reflected from the innumerable faces or facets which the rough grinding of the glass has produced. The whole window will appear as if the light were beyond it, and from every point of this luminous surface light will radiate into all parts of the room.

This excellent suggestion, which we owe to the scientific mind of Sir David Brewster, should be adopted in the construction of all town offices where there is want of illumination.

ARTIFICIAL LIGHT

In cities is now almost exclusively obtained by means of "coal gas." This, as every one knows, is made by heating mineral coal in retorts. It is a complex chemical product.

So long as there is no leak in the pipes, and care is taken to prevent the escape of the gas, it is an unobjectionable means of producing light. But cases have frequently occurred in which death has resulted from an escape of gas into sleeping apartments. This result is owing to the presence of carbonic oxide gas or other impurities.

All coal gas is purified before being passed into the receiver, and various methods are employed to accomplish this, not all of equal efficacy. That which is most highly recommended, and which would appear to deserve to come into general use, is by means of oxide of iron.

KEROSENE AND DANGEROUS OILS.

In country localities the principal sources of artificial light are some of the products of petroleum, variously known as kerosene, mineral, lamp oil, etc. These can and ought to be rendered truly non-explosive, and as safe as the whale oil used by our fathers; but as this requires an additional refinement at a cost of a few cents a gallon, unworthy competition and the unscrupulous cupidity of venders push into the market large quantities of kerosene as inflammable and as danger-

ous as so many barrels of gunpowder. Hardly a day passes that accidents are not recorded from its explosions, with destruction of life and property, and it is estimated that more than two thousand persons are killed or injured annually by these accidents.

Many States have passed laws regulating the sale of this oil, providing tests for its examination, and stringent penalties for offering that which is dangerous. But there is a prevailing negligence in carrying these into effect.

Many of the oils advertised as "Safety" and "Non-explosive" are in fact of the most perilous character. Unfortunately, the testing of the oil to ascertain its character is not easy, and can only be successfully carried out by an experienced person.

It is to be borne in mind that it is only the vapor which arises from the surface of the liquids, mixed with air, which suddenly explodes. A lamp or can cannot explode if full or nearly so. Dealers often hold a lighted match to the oils they sell, set fire to them, handle them, and pretend to prove in this way that they are not dangerous.

This kind of experimenting is unfortunately deemed satisfactory by many, and they readily purchase the dreadful combustible for their families. Now, the fact that these men are able to ignite their fluids so readily *is positive proof* of their *dangerous character;* for any liquid, so volatile as to take fire at ordinary temperatures, will supply vapor in lamps and cans which, when mixed with air, will explode like gunpowder.

But it is not often that the conditions are favorable in lamps and cans for explosions, and they do not often occur. Three-fourths of all the accidents which are reported as lamp explosions are not explosions; they are horrible burnings from the simple ignition of the fluid from spilling it upon the clothing, or by the breaking or upsetting of lamps. These naphtha fluids are not so dangerous from the liability of the vapor to explode, as from the inflammability of the liquids themselves. The loss of life, and the loss to insurance companies from the burning of buildings, are due much oftener to the ignition of the fluid than to explosions; occasionally a genuine lamp explosion occurs, but not often, for it is difficult to have in a lamp or can just the right mixture of air and vapor.

It is not necessary for purchasers and dealers to be put to the trouble of experiment. They should know that any liquid which will burn readily at ordinary temperatures *is unsafe. Nothing can be added to gasoline or naphtha which will render it safe, or the vapor unexplosive.* The travelling quacks do not add anything to their liquids but cheap insoluble substances, and this they do to keep up the deception.

When any one comes before officers of insurance companies, dealers, or consumers, claiming that he has an "inexplosive oil," which is "perfectly safe," and challenges a trial, let them turn a little of the fluid into a cup or saucer, and if it takes fire when touched with a match, *it certainly will afford explosive vapors, and is a dangerous agent.* The venders of such fluids are conspirators against the lives and property of

consumers, and they should at once be arrested and turned over to the prosecuting officers of the commonwealth.

EFFECT OF ARTIFICIAL LIGHT ON AIR.

The effect produced on the air of a room by the combustion incident to artificial light is nearly the same as when a number of persons are breathing in it. One pound weight of oil consumes about 140 cubic feet of air, while the quantity breathed by an adult man is on the average 16½ cubic feet per hour.

Every cubic foot of coal gas uses up the oxygen of from 14 to 15 cubic feet of air. An ordinary gas-burner consumes nearly 45 cubic feet of air per hour, and, therefore, vitiates the atmosphere of a room to an extent nearly equal to that produced by the respiration of three men. Nevertheless, a good article of coal gas, in giving as much light, evolves but one-fourth the amount of carbonic acid gas which results from the combustion of tallow candles. Large gas-burners give more light, in proportion to the quantity of gas consumed, than small burners do.

THE VENTILATION OF DWELLINGS.

Few questions of public hygiene have been more prominently brought before the public than that of ventilation, especially as applied to churches, court-rooms, legislative chambers, and other public structures.

The object is to obtain a change of air at the rate of two thousand cubic feet per hour for each person. Numerous plans and not a few discrepant propositions have been advanced to accomplish this. With such discussions we shall have nothing to do, but confine ourselves to the practical question, in which every individual is interested, how to secure the best ventilation in ordinary dwelling-houses?

We may consider this question to be proposed under two different circumstances: the one, when a person is planning a residence, and desires to look to means of ventilation in its construction; the other, when the house is already built without them, and the object is to devise the most efficient substitutes.

Careful experiments of recent date have overthrown the old idea, founded on theoretical considerations, that the vitiated air should be allowed a place of escape at the highest point of the apartment, near the ceiling. Just the reverse of this is true. The opening into the ventilating flue should be *near the floor*, and in order to secure an ascending current of air the flue must be warmed. This can be done in several manners. When large, we have known a gas-jet to be placed in them. But a cheaper and better plan is to place them close to the chimneys.

As has been remarked by Dr. S. H. Douglass: "The plan of base ventilation is the system that most commends itself to our practice. Double flues, one for the conveyance of smoke and the products of combustion, the other the foul air of our rooms, placed when practicable in the interior of our dwellings, and

having ventilating registers opening at or near the floor, if of sufficient capacity, will secure the required purity of air."

The advantages of this plan are not only evident by a study of the theory of impure air, but have been strikingly exemplified by repeated experiments in hospitals and private dwellings in Philadelphia and other cities. The architect of a house should not omit to embrace such ventilators in his plans. And when they are neglected, they should be insisted upon.

The old-fashioned open fireplace acted precisely on this principle, and formed one of the best ventilators which could be devised. It deserves to be retained for this if for no other reason.

A ventilator near the ceiling also aids in removing foul air, but to a less degree, and only after it has done most of the harm which we seek to avoid.

The second case supposed, is where we have to devise some plan to supply fresh air in chambers in the walls of which no ventilators have been constructed.

Obviously our first recourse is to the windows. These should be freely opened whenever the weather permits. Bad air is often more pernicious than a "draft." When the upper sash lowers, a crack of two inches will secure quite an active atmospheric current.

A still more satisfactory plan, when the weather is cold or one is sensitive to a draft, is to place a piece of board an inch or two in thickness, and in length equalling the width of the sash, immediately below the lower sash, so as to prevent it lowering to the frame.

This throws the upper edge of the lower sash above the lower edge of the upper one, thus leaving a crack through which the outer air rushes, not directly into the room, as when the sash is opened, but from below upwards. There is no draft perceived, while yet a large amount of fresh air is introduced.

Next to the window, the door offers a means of ventilation. Sleeping chambers should as a rule have a transom over the door, with a revolving window. Or the upper panel of the door may be cut out and placed upon a hinge. The habit of listing doors, though favoring warmth, shuts out the air. Door-sills to chambers are undesirable, and are no longer put in the best residences.

As a last resort, we can break a hole in the wall and insert a tin or iron tube, one end of which shall be directly over a gas-light, and the other in the open air. This works well, but is not always free from down drafts.

The pertinent inquiry may be made, whether air vitiated by respiration and combustion cannot be promptly purified, instead of being expelled and its place supplied by that which is fresh. Could this be perfectly accomplished, we need trouble ourselves no further about ventilation.

Hygienic chemistry can do much, but it cannot yet do this. Nevertheless, where abundant ventilation is impossible, much of the poison which contaminates the air can be neutralized by the judicious and abundant use of those articles known as disinfectants. In a later chapter we will mention several of these, which

may with advantage be kept in crowded rooms and shops.

MEANS OF WARMING.

The days of the fire on the hearth, with its back-log and fire-stick, its dancing flames and heaps of glowing embers, have almost passed away. Only in remote country hamlets and retired farm-houses do we now and then greet once more this familiar memory of our boyhood. Now even the owners of acres of woodland buy and burn coal, and in cities a wood fire even in a stove is a rarity.

Warming flues extending through the house from a furnace in the cellar are the ordinary heating apparatus of an American house. It is a convenient and healthful plan, provided that certain precautions are taken.

The first is to obtain the proper kinds of furnace. Of course we have no intention of recommending any particular article, but some of the plans adopted for heating the air are objectionable. When the cold air is warmed by passing over heated plates of cast iron, the air is over-dried and carbonic oxide gas is developed, which is poisonous in character. The surprising fact that various gases pass through the solid substance of several metals when heated to dull redness has only recently been ascertained, and has a most important bearing on house-warming. Those furnaces in which the air is heated by circulating between drums of rolled sheet-iron, at a temperature considerably below redness, are much the best.

Those furnaces in which the air is heated by passing

among coils of pipe filled with hot water are on this account to be preferred.

Proper precautions must also be taken to insure a full supply of fresh air. In most furnaces the air which passes into the flues enters the chamber of the furnace directly from the cellar, and carries with it to all parts of the house the impurities with which it is loaded. Many cases of illness are thus caused. To remedy this, the pure air should be conducted from outside the cellar through a large wooden or tin tube to the furnace-chamber. When this is not practicable, the cellar should be maintained in scrupulous cleanliness, and the utmost care taken that emanations from sinks, sewers, or cesspools do not gain admittance to it.

Air when heated becomes dryer, that is, its capacity to absorb moisture is increased. As this is considered objectionable, a well-known maxim in domestic hygiene is to place a vessel of water on the stove or in the furnace-chamber. Such a measure is not objectionable, but it is of much less importance than many precautions constantly neglected. Economically it is advantageous, because in a warm atmosphere which is moist we feel warmer than at the same temperature in a dry air. On the other hand, a dry heat is bracing, while moist and warm air is debilitating and relaxing in its action, at the same time that it depresses the nervous system. The human body itself gives off about a quart of water a day from the lungs and skin, so that it adds materially to the moisture.

Stoves are less healthful than well-constructed

furnaces, because they always allow the escape into the apartment of a portion of the unhealthy gases generated during combustion, and also volatilize any organic matters which come in contact with them. Cast-iron stoves are a not unfrequent cause of typhoid fever, the gases passing through the plates when heated.

Hot water or steam conveyed in pipes through the house affords an excellent means of warming. This method is, however, expensive, and more likely to be chosen for public than private dwellings.

REGULATION OF TEMPERATURE.

Whatever method of heating is adopted, it is of the utmost importance to know how to regulate the temperature. It is astonishing to what a degree we are creatures of habit in this respect, and how readily we become habituated to a much higher temperature than is necessary or beneficial for us. Dr. Chambers relates an instance, and that, too, of a medical man, who, being sensitive to cold, instead of inuring himself to it, constantly added to his clothing. He wore double flannel, made expressly for his private use, all over his body even in the warm season; he always had a fire in his bedroom and slept under heaps of clothes; but, in spite of all this coddling, he not only suffered more and more from chilliness, but became a wretched dyspeptic.

Now what was Dr. Chambers's treatment? He advised him at once, although in February, to throw

off his extra clothing, to take a cold shower-bath every day, and active movements in the open air. This was the correct treatment, and soon all the distressing sensations disappeared.

We constantly find "tender" people who keep their living-rooms at a temperature of nearly 80 degrees in winter, and to our remonstrances assert that they are "chilly" if the air is cooler. This is foolish "coddling," and if they would take a cold bath every day, and a brisk walk in the out-door air without too many wraps, they would suffer far less from the cold.

A thermometer should be in every sitting-room, and it should not be permitted to indicate a temperature of more than 70 degrees. This is always warm enough, and any greater heat is actually hurtful. Dr. Kane in his expedition to the Arctic regions found that the men were more comfortable when the cabin was at 60 or 62 degrees than when it was hotter; and this is about the temperature recommended for hospital wards.

Persons should know that "colds" are as often caught by going suddenly from a cold to an overheated atmosphere—as from the street on a cold winter day into a room at 80 degrees—as from a heated room into the cold. The less the change, the greater the safety.

PAPER-HANGINGS.

The importance of first-class plumbing in a house cannot be overrated. In a previous chapter, where

we spoke of the impurities of water, we gave a sufficient number of hints in reference to the care to be exercised in distributing that fluid in dwellings. We propose now to direct attention to an obscure but frequent cause of reduced health, which is too much overlooked, but which every house-buyer and house-builder should be acquainted with; this is, the poisonous character of some colors of paper-hangings.

These are those which have been colored with arsenical dyes. Nearly or quite every *green* wall-paper contains arsenic, and is therefore injurious to the health. The light greens are no safer than the dark ones, for the very palest contain large quantities of arsenite of copper, the brilliant color of which is toned down by the addition of chalk or white-lead. Chemical analysis proves that sometimes from five to fifteen grains of this poisonous substance are contained in one square foot of paper.

As the arsenic is exceedingly volatile, it quickly passes into the atmosphere of the room, and is inhaled by the breath in the form of a fine, impalpable dust, producing numerous symptoms of diseases, the true cause of which continues wholly unsuspected by both physician and patient. All persons should make it a rule to refuse to purchase green wall-papers, and not to sleep or work in close rooms where this color is upon the walls.

Some of the symptoms produced by this slow form of poisoning may be mentioned here, so that they may impress the point we make still more forcibly.

First appears irritation of the mucous membrane,

causing diarrhœa and vomiting, with various other symptoms of severe derangement of the stomach, resulting in permanent indigestion: also incessant severe cold in the head, which, in one instance, lasted *for several years* without being touched by any remedy; ulcerated throats, with acute inflammation, resembling diphtheria and quinsy; severe spasmodic cough, spasmodic asthma, bronchitis, and congestion of the lungs; soreness of the mouth, lips, and tongue, which appear as if scalded in patches; inflammation of the eyes and eyelids (the conjunctivæ being invariably bright red), in one case threatening absolute loss of sight; congestion and torpidity of the liver, with the various symptoms resulting therefrom; and severe bilious and feverish attacks. There is, in short, irritation of every organ. In many cases, if not in all, the action of the heart is weakened, and in some palpitation frequently occurs. There are pains in various parts of the body, especially across the shoulders, down the spine and limbs, also in the joints, which are often stiff and swollen; scaling of the skin, and irritating eruptions. The effects upon the nervous system are most remarkable, producing a thoroughly shattered condition; great irritability, depression, and tendency to tears; with unusual prostration of strength. These latter symptoms are especially marked in children.

A wall in hard finish, painted or frescoed, is far preferable to one in paper, and, so far as health is concerned, a whitewashed wall is better than either.

A second observation with reference to paper-hangings is that when they mould upon the wall, they

undoubtedly vitiate the air of the apartment. On eastern exposures and in stone houses it will sometimes be noticed on stripping a small piece of the paper from the wall, that the latter is covered with a gray or green mould, having a faint, nauseous odor. When this is the case, the whole of the paper should be removed, and the wall either "stripped" and plastered, or else finished in hard finish and left unpapered.

Every dictate of prudence also reprehends the filthy custom among people of pasting one wall-paper over another, till a thickness of an eighth of an inch or more has accumulated. This was the cause of the puzzling offensive smell at a soldiers' barracks in London, that a year or two ago threatened the whole establishment with fever. The examination of the drains and taking up of the floors revealed nothing, while the introduction of increased means of ventilation left the evil as it was. At last an examination was made of the wall-papering, when it was found that one paper was pasted over another till a thickness was accumulated amounting in one case to fourteen layers. Between these layers there was rotten paste, in which fungi and even worms germinated, the stench spreading over the establishment.

FURNISHING A HOUSE.

A rigid hygienist would be an economical house-furnisher. Velvet-like carpets, downy pillows, soft upholstery, and carved wood-work would not meet his approval.

He is aware that the most subtle poisons in the atmosphere are the organic matters which are thrown off from our own bodies; and he knows that these are retained in dwelling-rooms chiefly by the carpets, the upholstery, the curtains and hangings. Even the solid parts of the furniture, the paper on the walls, and the ornamental work of the wood-carver, offer opportunities for the accumulation of these pestiferous materials.

Carpets gratify the eye, but a painted or polished floor, or one covered with oil-cloth, is more salubrious. Sofas and stuffed seats indulge the sense of luxury, but lay traps for the health.

Modern furniture is, however, an improvement on that which was in fashion fifty years ago. The furniture of that day was massive and encumbered with upholstery. The bed was surrounded with heavy curtains and covered with a canopy. It was often placed in a recess, or in a small cabinet leading into the main chamber.

Now there is some provision for a freer circulation of air. The wood-work is lighter and less absorbent; curtains are out of date; spring, hair, and wire mattresses have supplanted the ancient feather-bed; iron has taken the place of wood in many bedsteads, tables, and chairs. There remains, however, abundant room for still further improvement.

The bed should be placed with its head against the middle of one of the walls, so that access can be gained to it on either side, and the air pass freely around it. The chamber ware should be kept in a

commode. There should be no direct communication from a sleeping apartment to either a conservatory or a water-closet. And the windows should have shades rather than curtains.

THE KITCHEN AND ITS FURNISHING.

Too little regard is paid to the furnishing of the kitchen by American housewives. Were they to study the comfort of their servants a little more, these would be less the "plague of life" than they now are. We have repeatedly seen the kitchens of "first-class" houses so built and so furnished that the only wonder was that any neat girl could be induced to remain.

Basement kitchens are to be wholly condemned. They are always damp, gloomy, foul-smelling, and insalubrious. Small kitchens are little better. The odor and steam from cooking, washing, and other household avocations must find free exit and not be confined.

What the kitchen ought to be is a large room a foot or two above the ground, with good-sized windows on at least two sides, provided with a wide ventilating flue, an abundant supply of water, excellent drainage, and an outside porch open on two sides, and closed on that which is most exposed to the weather. It should be separated from the rest of the floor by a short passage-way, and should have a dry, clean cellar.

The walls and wood-work should be painted light brown, the ceiling whitewashed, the floor of the best quality boards either oiled or covered with oil-cloth.

The range or cooking-stove used should be provided with a flue to carry off the heat in warm weather. The fire should be so placed as not to shine directly upon the face in any cooking operations. Smoke, dust, and gases should find immediate escape.

The sink and washtubs should be so constructed as not to pen up foul air and dirt, but allow free circulation of air under and around them. Some builders carry the hot-water pipes outside the plastering, which is a neat device, as otherwise their warmth is a great attraction to numerous insects.

The gas or other light should be located so as to illuminate the stove or range so that in the evening cooking can conveniently be carried on.

For sinks, galvanized iron or zinc is better than common cast iron. Stationary washtubs, when desired, should be of soft wood well painted, or of soapstone.

In conclusion, we recommend mistresses of households to take pains to make their servants *comfortable*, by fitting up the kitchen and the servants' chambers neatly and attractively. Now and then they will have to complain of an ungrateful return, but, in the long run, they will find themselves amply repaid by a marked increase of willing service and domestic comfort.

NEWLY-BUILT HOUSES.

We have now gone over our model house, in at least a cursory manner, from cellar to attic and parlor to kitchen. We have even furnished it, in accordance

with as sound principles as fashion countenances. And we are now ready to move in and have the house-warming.

But here Hygiene steps in again, and recommends that the literal house-warming take place before the moving. For all know that newly-built houses are not so healthy as those which have been inhabited for some time. They are damp, and their freshly plastered walls prevent ventilation through the brick-work. If you are obliged to be the first occupant of a house, burn a few tons of coal in it before you subject yourself to the influence of its damp atmosphere. Three months at least should elapse after the plastering is done before the rooms should be inhabited.

The painting, too, must be allowed to become entirely dry. The lead paint used on the wood-work will otherwise produce symptoms of lead-poisoning in those sensitive to its effects. We have known more than one case where this has occurred.

The observation is often made that the owner of some unusually fine mansion does not live long after entering on its enjoyment. Frequently the reason is that he moves in too soon, and succumbs to some of the noxious influences which arise from the dampness and fresh paint.

In Berlin there are a class of persons who, having no homes of their own, volunteer to live in houses just finished and take care of them until they are thoroughly dry, which in that humid climate requires many months. They are called *Trockenwohner*, and are a conspicuously unhealthy class, crippled with rheumatism,

broken with coughs, and doubled with cramps. They vividly illustrate how insalubrious such an undertaking is.

OLD HOUSES.

If one must be cautious about entering a new house, he should be doubly so about occupying a tenement which has been long standing, and which has been absorbing for years the exhalations of various occupants.

Before buying such a tenement, we should study closely not merely the deed, but its history and traditions as well. Shun a house which has a bad sanitary record, no matter how free from causes of disease it seems to be. Those causes are sometimes beyond our ken, while yet they are present and active. A house where there has been much sickness and many deaths, no matter from what diseases, is not an "eligible property," and often proves dear at any price. Such a history is worse than a flaw in the title.

An old house in Europe means one built about the time of the Crusades or the Reformation; in the United States, one whose date carries us beyond the war with Mexico seems already verging towards a respectable age, and one which was standing during "the Revolution" is regarded with veneration as a monument of hoar antiquity. The art of house-building—domestic architecture—is of recent growth, and few dwellings constructed five-and-twenty years ago, can show any of those "modern conveniences" which are now found in even very humble residences.

For this reason an old house is rarely a satisfactory purchase, as it costs well-nigh as much to tear it inside out and insert water-pipes, flues, ventilators, etc., as it does to build outright.

Whenever an old house is reoccupied, it should undergo a most prolonged and searching cleansing and disinfection. The old paper should be carefully scraped from the walls and burned, the cracks in the walls and floors filled with putty or cement, the cellar floor newlaid, the wood-work repaired wherever dry-rotten or decayed, the roof patched, and especially all accumulations of refuse in the yard, outhouses, closets, or privies scrupulously removed. The earth, sodden with slops around the kitchen, should be carted away and replaced with that which is fresh and dry. Chips, shavings, and scraps should be burned. Ceilings should be whitewashed, and as much air and light be admitted as possible. Fires in the furnace or stoves should be maintained for a week or two before the family moves in.

If these precautions seem unnecessary and onerous, they will not when our readers learn that in repeated instances the most fatal maladies, such as puerperal (childbed) fever, malignant scarlet fever, diphtheria, and typhus fever, have been propagated from tenant to tenant, and from owner to owner, because, through ignorance or indifference, no such care was taken.

There are single wards in hospitals which have been known to retain for years, and in spite of every measure, the poison of a contagious disease. And if this is so in institutions constantly under the care of

experienced nurses and physicians, what may we expect from long-closed, ill-cleaned old houses? Many instances where contagious diseases seem to have arisen spontaneously in a family can be traced, with every shade of probability, to their moving into apartments which at some previous time had contained patients suffering from the same maladies.

CHAPTER VI.

ON EXERCISE.

CONTENTS.

The objects of exercise—Walking—Riding and driving—Precautions in travelling—Various exercises—Light gymnastics—Rowing—Swimming—Dancing—Boxing—On training.

THE slothful servant who received his talent and buried it in the earth was called by his master a wicked one, and was punished by being deprived of even that which he had. The parable has many applications, and none more forcible than when taken to represent the physical powers with which we are endowed by nature. Use alone gives perfection. Who does not regularly and with discretion exert his muscular powers, will much cut short the time in which he has a chance to exert them. Exercise not only prevents disease, but sometimes cures it, as we shall show more fully hereafter when we come to treat of the "movement cure."

At present we do not design to enter into details of the various methods recommended to develop the body, nor to furnish instructions in gymnastics, but only to state those general principles which should govern persons in using exercise, and to compare the various means most accessible and usual.

THE OBJECTS OF EXERCISE.

Physical culture has attracted much more attention of late than formerly, and most large institutions of learning have their gymnasia, where some theory of gymnastics or calisthenics is taught. Very many who attend them derive no benefit whatever; some are actually injured; the wonder is that more are not. For the physiological principles which should direct all efforts for muscular development are commonly as little familiar to master as to pupil.

Even the prevalent theory of gymnastics is radically wrong. It is, that there are a certain number of contortions which are to be done, or some given movements of a most unusual character to be performed. Usually the more strange and violent the contortion, the greater is the supposed proficiency. Then it is imagined that it is good training to do some movement, say to put up a dumb-bell, as many times as one possibly can. The greater the fatigue experienced, the more prompt and decided is the benefit expected.

Now, all this is utterly erroneous and false. Exercise should be taken on no such principles. The few who can survive such a training, and maintain their interest in it, may indeed become athletes. But athletes, brilliant gymnasts, are notoriously short-lived, strange as it may seem. They die of heart disease, they break down under general nervous prostration, they perish with sudden congestions. Such health as theirs is delusive.

Let us state at once what the physiological aim of

all exercise is, and then we shall have clearer ideas how to attain it. It is *to equalize the circulation and the nervous force.*

To explain: the student at his desk, busy all day over his problem, calls all the nervous force to his brain, and with it all the blood possible. His chest is bent, and he respires feebly; his limbs are at rest, and the blood flows sluggishly in them. Should he continue thus for days and weeks, these unused parts lower their vitality, and thus become liable to disease. Etiquette forbids the Roman cardinals to walk abroad; the result is, that hardly one of them escapes ulcerations of the legs.

This equalization of the blood and nervous fluid is essential to health. Exercise is the means to secure it. To do it effectively, each muscle and each organ should be brought into play frequently, but not necessarily to fatigue. Experiment and theory both show that exercise just short of fatigue is more efficacious than that pushed beyond it.

The movement should at first be slow and regular, not short and quick. The former gives endurance and power; alertness can be sought later. It should be repeated from five to ten times. No movement whatever should be practised which throws the muscles into positions which they are never called upon to assume in ordinary actions.

The usual fault of the circulation is that it is too much centred about the great organs of life; too little shared by the extremities and the surface. The heart, the brain, the lungs, the stomach, the liver, these must

absolutely perform their daily labor, or the individual straightway dies. Not so the extremities. They may remain in entire rest for long periods, without visible deterioration of the general powers.

But the repose is a deceptive one, and soon one or another of the organs of life, overloaded, overworked, overfed with blood which belongs elsewhere, gives out, becomes congested, and then farewell to comfort.

THE PRINCIPLES OF EXERCISE.

The sedentary man should, therefore, seek to bring the blood to his hands and arms, and his feet and legs. His exercises should not at first be of such violence or character as to quicken his breath or cause his heart to beat with increased force, or so local as to pour all the blood to spare into one set of muscles. Whenever, after exercise, he discovers his feet and hands to be cold, his face pale, his respiration oppressed, and a sense of nervous exhaustion, sometimes approaching faintness, present, then his exercise is doing him no good, but harm, and he must not give it up altogether, but modify it.

The ambition to "develop muscle" and to perform feats is a foolish one. The health-seeker should judge of his progress not by these tests, but by the infallible one of his own sensations of increased physical and mental well-being.

The beginner, at any unaccustomed series of exertions, will experience a soreness in his muscles, which

lasts a few days. It should not interfere with his continuance, as it is of temporary character.

No great effort should *ever* be made, either in the performance of a difficult feat, or in the long continuance of an easy one. To repeat with regularity a number of times—up to the point of fatigue—some simple movement, is much better practice.

Those exercises are to be preferred which lead us into the fresh air and the sunlight; those which place us under conditions different from those to which we are subject at other times; which divert and fix our minds while they exert the body; and, beyond all else, which in themselves are pleasing and attractive to us. As Dr. Arnott says:—

"Whene'er you sweat, indulge your taste."

The forced labor of the tread-mill or the galley did little to keep in health the poor wretches who were condemned to it. To combine recreation and amusement with muscular exertion is a happy success, and the perfection of physical culture.

Boys, who require much exercise on account of their growth, instinctively devise all manner of games and athletic sports, thus fulfilling the demands of their systems. Some games are not less popular among adults, and supply a want. Billiards ask moderate exertion, and, when practised in rooms not filled with segar-smoke and the fumes of liquors, are innocent and beneficial. Bowling requires a severer use of the powers, and may be advantageously practised.

The majority of such pastimes are, however, not

suitable to the greater number of those who need the exercise they give for sanitary purposes. These must seek it in some other direction. The readiest and one of the pleasantest is

WALKING.

This puts the muscles of the lower extremities in lively motion, and draws the blood from the brain, the lungs, and the heart. There is a moderately increased activity in respiration and circulation, the warmth of the body is augmented, and at each step the interior organs receive a slight jar which communicates to them tone and energy. Independently of these advantages, it is also the most *convenient* of all exercises, requiring no apparatus and no elaborate preparation. It can be varied at will, and is associated with a diversity of sights and sounds which divert the mind and agreeably occupy the senses, thus redoubling its benefits.

The amount of walking which a person in health requires varies according to each one's powers. In England, where this is much more a favorite exercise than with us, and where every university student takes with regularity his "constitutional" promenade of an hour or two, from five to eight miles daily is not considered unusual.

It is better not to walk for the sake of walking—which is at best very stupid business—but to walk with some object in view. There are many things to entice us into long walks. Some love hunting or

fishing, admirable sports, and unsurpassed for health; others delight in botanizing, in collecting minerals, or in some other department of natural history; or the love of travel simply may be sufficient reason. A pedestrian tour, planned, let us say, in the month of October, amid the ripe cornfields and the varied foliage of an American autumn, what more delightful could be suggested! This is the true way to enjoy travelling, not to be hurried along in a smoky car, day and night, on an interminable railroad. As Goethe says in his "Wanderer's Song":—

From the mountains to the champaign,
By the glens and hills along,
Comes a rustling and a tramping,
Comes a motion as of song.
And this undetermined roving
Brings delight and brings good heed,
And thy striving, be it with loving,
And thy living, be it indeed.

In regard to the hour which should be chosen for a daily walk, much necessarily depends upon the obligatory employment of our time. When we are able to choose, the two hours after breakfast and the two before sunset will be the best. Observers of the weather will notice that when the day is rainy, generally the rain ceases for about an hour before sunset.

Of course it is essential that the feet be dry, the shoes comfortable, and that no unnecessary exposure be incurred.

RIDING AND DRIVING.

Horseback exercise is probably the "very best" for those with a tendency to pulmonary consumption or to liver disease. It is also possible to the gouty the rheumatic, and the lame, whose maladies interfere with their pedestrian pleasures.

The series of vibrations which are imparted to the central organs by the steps of the horse are precisely the movements required to disperse congestions and regulate the action of the heart. In repeated instances, we have known most excellent results follow regular and moderate equestrian exercises. They should be preferred on the road, and not in the confined and insalubrious air of riding-schools. The fresh air and invigorating scent of green fields and flowers contribute much to the benefit as well as the enjoyment of a ride. But, as we have said, the chief advantage is the jolting. After some preliminary practice, which should never be violent, a rough horse may be selected.

A well-known physician of Philadelphia, who, in his youth, was seriously threatened with consumption, cured himself by removing the springs from his carriage, and allowing himself to jolt over the cobblestones all day long in his rounds to see his patients. This was the same effect which is attained by horseback exercise.

Some complaints, however, forbid its employment. They are, ruptures and a tendency to them, piles, some

varieties of heart disease, female diseases, and affections of the bladder.

Sufferers from these, and all who are too weak or too timid to trust themselves on horseback, can derive advantage from *driving*. The modern carriage, it is true, is so balanced on its springs, so padded and stiff, that the exercise it gives is gentle indeed. But, on that very account, it is the more suitable to the debilitated invalid, combining passive motion with fresh air and the pleasing variety of the country.

The days of journeys in one's own vehicle have gone by, but now and then it is a delightful change to travel with good horses, cheerful company, and a comfortable carriage through the remote rural districts, still untrod by the iron horse. The hypochondriac will drop his load of cares by the wayside as Christian did his bundle, and the nervous invalid will derive strength and pleasure from the novelty.

PRECAUTIONS IN TRAVELLING.

Whenever travelling is undertaken for health, several precautions must be observed, or it will fail of its ends. The season must be either spring or autumn, so that one is exposed neither to the sultry heats of summer, nor the bitter cold of winter. All anxieties and cares about business and home affairs must be left behind, for worrying about the absent is to the last degree depressing and vain. At first, short stages should be undertaken, and at all times excessive fatigue must be avoided. Days of repose should be frequent, and on

no account should the journey be prosecuted at night. Not only should the time given to sleep be sufficient and at regular hours, but the meals should be secured at fixed periods of the day, and the general habits of life be broken in upon gradually and with caution. Personal cleanliness, both by bathing and frequent changes of the clothing, should be even more scrupulously studied than at home. Novelties in diet should be ventured upon with hesitation, and every species of excess shunned.

VARIOUS EXERCISES.

Of the many popular varieties of exercise we shall briefly mention the most prominent, with their especial advantages. The principles which should govern the employment of general gymnastics and calisthenics have already been mentioned. Of their varieties, the

LIGHT GYMNASTICS.

recently so prominently advocated and introduced into many schools, are one of the best. The movements call pre-eminently into play the extremities and the superficial muscles, thereby, as we have explained, relieving the congestion of internal organs—preventing, as it were, the "centralization" of the blood, as dangerous a tendency in the body corporeal as in the body politic. They are well adapted to both sexes and to all ages. Under the name parlor gymnastics they have been introduced into private families, with much benefit.

The apparatus is simple and inexpensive, and allows a large number of movements.

The light dumb-bells and the Indian clubs are well calculated to afford a great variety of exercises for the upper extremities and muscles of the chest, neck, and abdomen. In cases of dyspepsia depending on want of vigor, and where there is no tenderness on pressure, they frequently bring about a rapid and permanent cure.

ROWING

Develops the arms and chest, but should be combined with exercise of the lower extremities to act with full benefit on the health.

SWIMMING,

Which is a valuable art to acquire, demands considerable strength, and those with heart or lung disease are rarely improved by it. The same is true of

DANCING.

Indeed it should be banished altogether from the category of healthful exercises, as it has already been from that of religious rites. Its character has changed since the time when our ancestors in merry England danced on the greensward around the Maypole and on the verdant turf of the village common, or since David "danced before the ark," singing psalms of praise to Him who had rescued him from the hands of his

enemies. Now dancing is an insane twirling and spinning in overheated rooms, late at night, the atmosphere laden with dust and the emanations of the hot and crowded assembly. This simply deserves unqualified reprobation on the part of the hygienist. Many a feeble girl has received the last and fatal blow to her health in the mazes of the waltz; many a year of chronic misery has been entailed by its unwholesome surroundings.

BOXING

Has been at periods a fashionable amusement in this country, though for self-defence our national temper takes more kindly to less unequal weapons than those which nature has provided. It is for those robust enough to practise it a most admirable exercise, developing the muscles of the whole frame, educating the eye, and giving both power and promptness to the motions. But it is very unsuitable to the feeble and those with weak and irritable hearts. The heroes of the pugilistic ring very rarely reach an advanced age. This is partly attributable to the excesses in which they indulge and the severe handling they occasionally experience, but it is also in a measure the consequence of over-exertion and over-training.

QUOIT-PLAYING,

An ancient and popular rural sport, should be more cultivated than it is. Few exercises tend to develop

more gracefulness of motion, and are less attended with accidents.

ON TRAINING.

Those who contemplate taking prominent part in the popular athletic contests of the day are accustomed to prepare themselves for the strife by "going into training," as it is called. This means by adopting that course of regimen and exercise best calculated to develop the maximum muscular power of the individual in the shortest time.

Not unfrequently, owing to an ignorance of the maxims that should govern them at such times, and impelled by an ambition to win, young men overdo their training, and seriously injure their constitutions.

It should, therefore, be entered upon with due caution, and carried on intelligently.

In training for any kind of severe exercise, great attention must be paid to diet and to the habits of every-day life. Early rising, regularity in eating, and perfect cleanliness of the skin, are important points. An animal diet is preferable to a vegetable regimen, and the meat should be easily digestible, and not overfat. Starches, being somewhat difficult of digestion, should be sparingly used. Alcohol, tobacco, and snuff are inadmissible, but tea and coffee may be used in moderation. A complete bath should be taken at least once a day, and the surface of the skin subjected to friction. Eight hours' sleep will not be too long. Much exercise is not desirable before breakfast,

because at that time the stomach is without food; but that meal should be taken as early as possible. Many persons practise severe exercise for a few days or weeks, and then abandon all active habits for perhaps a few months. This is what might be well termed the *intemperance* of exercise. Regularity in the motions of the body, as in everything else, is desirable; and men should always be in sufficient training to enable them to take a long walk, or to play a good game of ball, with the certainty that they would not suffer from muscular pains on the following day.

After the contest is over, the habits of exercise should be diminished gradually, and only after some weeks the ordinary habits resumed.

There is much doubt whether the periodical seasons of training which are passed through by most athletes contribute any real benefit to the general health. They are more likely to favor the development of the seeds of disease of the brain or heart.

CHAPTER VII.

ON REST AND SLEEP.

CONTENTS.

Change of occupation—Recreation—Sleep; amount of sleep; hours of sleep; how to induce sleep; to escape bad dreams; the awakening—The bed and bedclothing—Night-clothing—The bedfellow—The chamber; ventilation; warming; presence of plants; of odors.

EXERCISE and rest, activity and repose, are the opposite conditions essential to life. The regulation of the latter is as important as of the former; more so, perhaps, for we can exist, and for a time comfortably, without regard to exercise, but rest is a necessity we cannot escape.

CHANGE OF OCCUPATION,

In one sense, is rest. It relieves the organs which are fatigued, though it calls others into play. To be able thus to rest is a great art, and one of the elements of conspicuous success. The most eminent scholars, and the workers who have accomplished most, have possessed this faculty. The Chevalier Bunsen was distinguished not less for his knowledge of Egyptian antiquities, and his extensive acquaintance with church history, than for diplomatic skill. It is related of

him that in his study he had three desks, one devoted to each of these departments of learning. When fatigued with study of one subject, he would cross to another desk, and find, in the new direction it gave his thoughts, renewed vigor.

Men of versatile minds, who combine depth and accuracy of knowledge with their versatility, have the faculty of finding rest to a remarkable extent in changing their studies. An extraordinary example was the illustrious Alexander von Humboldt, whose vast intellect embraced all the natural sciences, and who, in addition, found time to write exhaustively on history, linguistics, and politics. He accomplished so much because, throughout his long life, he gave but four hours out of the twenty-four to sleep. The variety of his pursuits was sufficient rest.

But we are far from holding up such examples for imitation. The result might prove disastrous, as few are gifted by nature with this happy faculty. Generally, the mind requires entire relief from labor, either in recreation or sleep.

RECREATION.

Writers on hygiene have spoken much of sleep, little of recreation. Yet it is as essential to full health as sleep itself. Distrust the man who assures you that he finds recreation enough in his business. He is deceiving himself or you. He may think so, but the time will come when he will see his error and repent it bitterly.

A part of each day should be deliberately set aside for relaxation and amusement. People may say that you are wasting time, but the end will prove that you are saving it. It is a foolish economy that would devote the whole of the twenty-four hours to eating, sleeping, and working. The nursery rhyme is right when it tells us—

"All work and no play,
Makes Jack a dull boy."

The intellect is brightened, the boy strengthened, and the labor power increased by a certain amount of recreation.

What shall it be, and how much time ought we to give to it!

Here again we meet with the difficulty (which, for that matter, encounters us everywhere in this science) of laying down a rule of universal application. Let it be something which leaves no sting behind it, nothing contrary to the laws of health or morals, something that removes us as far as possible from the thoughts and manner of our daily labor. Agreeable conversation, the delights of art in its manifold forms, unexciting games, the lighter kinds of reading, spectacles, and a hundred other ways suggest themselves from which to choose. An hour or two daily given to such relaxations will fit us the better to do the work our hands find for them.

One of the characters in the novel of Wilhelm Meister says every person, to maintain his intellectual powers at their full measure of culture, should daily hear at least *one* strain of excellent music, see

one fine painting or statue, and read *one* poem or dramatic scene of acknowledged merit. Applying the advice to our physical nature, we would say that every person, to secure the best health, should give at least one hour each day to exercise, one to recreation, and one to his principal meal.

SLEEP.

We may rest one limb or set of organs by calling another into play, but ere long we must accede to the imperative summons of Nature, and give our whole bodies rest in sleep. This ever mysterious condition of life in which all sensation and thought seem to cease, demands from us nearly or quite a third of our whole time. No effort on our part can postpone it very long. It is said that alleged criminals, sentenced to the rack, have fallen asleep in the midst of their tortures. Soldiers will sleep amid the roar of cannon and the bursting of shells. A terrible punishment is practised in China. The victim is kept awake by being pricked with sharp bamboo canes whenever he falls asleep. The wretched sufferers are driven into a raging delirium about the seventh day.

It is not safe to resolutely struggle against the demands of the system in this respect. Hard students have brought on brain fever by too much limiting their hours of rest, and insanity is also a not unfrequent consequence of the same deprivation. Then, too, it is possible that when sleep is indulged, it may be so profound that there is no awaking. This

was the tragic end of the celebrated French surgeon Antony Portal.

AMOUNT OF SLEEP.

The *amount* of sleep which it is best to take depends on several considerations. Extreme youth and extreme old age require ten or more hours; in adult life most healthy persons will do well on eight hours; nervous and spare persons demand less than the phlegmatic and corpulent. The habit of the individual controls him much. Some by gradual retrenchment can reduce their time of sleep to five or even four hours, but the attempt is a dangerous and a futile one to the majority.

Too much sleep is also injurious. It debilitates the intellect, and renders the bodily functions sluggish and inert. Occupation, of course, must decide in many cases as to the precise length, but it is an error to suppose that the brain-worker needs much less sleep than the hand-worker. Though the sense of muscular fatigue is less, the nervous exhaustion is quite as great, and this it is that in either case should be remedied by a state of quiet.

HOURS OF SLEEP.

These vary much with the different classes of society and occupations. The laborer, the farmer, and most out-door workers are guided by the light, and give the day to labor and the night to rest. In the more refined and wealthy classes there is always a tendency to encroach upon the night hours with

amusements and study. Although the wise maxims which we all learn in early youth inform us that "night is the time to sleep," and that "early to bed and early to rise" is the secret of health as well as wealth, we must confess that proof is lacking to show that it makes any difference in point of health what portion of the twenty-four hours we devote to sleep, so that it is regular and sufficient. Here, again, habit becomes nature.

The Spaniards of the better classes, in both America and Europe, accustom themselves to a siesta or nap from two to four every afternoon. It is almost a national custom. Many with us, who are not obliged to trouble themselves about bank hours, have the same habit. For elderly or feeble persons it is a wise usage, as it imparts strength which they need. For others, as unnecessary, and tending to indolence, it cannot be recommended.

HOW TO INDUCE SLEEP.

Few situations are more disagreeable than to go to bed with the full hope and intention to lose all consciousness in a few minutes, and to remain wide-awake, or sink into fitful and broken slumbers. Some persons, especially those of a nervous temperament, suffer exceedingly in both these directions.

The problem how to induce sleep will therefore interest them much. It has often been discussed, but not with always satisfactory results. The recommendation to count up to a hundred or a thousand is not

efficacious, nor does repeating the same phrase over and over again succeed better. A bath just before retiring is more effective; and in default of this, bathing the face, neck, and hands in cold water will often accomplish as much. So far, as might be supposed, from making one still more wide awake, this soothes the nerves and calms the circulation. For sleeplessness which comes on after a first nap, it is well to try getting up and walking once or twice around the room. The agreeable want which is felt on returning to bed often induces sleep quite promptly.

Or Dr. Franklin's recommendation may be tried. He advised those troubled in this manner to rise and shake up the bed, with a view to change the air enveloped in its coverings. This is often successful, particularly in hot weather.

There is something in the *direction* in which to lie. With the head to the north is the most soothing. Many persons will smile at this, but nervous and delicate temperaments readily feel the difference. A year or two ago Dr. Hughes Kennedy, of Dublin, proved the importance of this position in sickness, by the relation of a number of cases in point. We knew an army surgeon who could not sleep with any degree of comfort except with his head to the north. In 1868 a physician of Magdeburg, Prussia, died at the extraordinary age of 105 years; he always largely attributed his long life and sound health to his invariable habit of sleeping thus. The philosophy of the position is that it conforms to the magnetic meridian, in which direction a constant magnetic current is flowing.

Bad sleepers should *rise early*. They should seek their rest at the natural time, not in daylight. They should, moreover, never sleep in the afternoons, as is frequently done.

The Rev. John Wesley relates that when a young man he was troubled with sleeplessness, lying awake for an hour or two shortly after midnight. To cure himself, he rose at six instead of seven o'clock. But the wakefulness continued. He rose at five. It still troubled him. He set his alarm-clock at four, and sprang out of bed. He then found he not only slept soundly all night, but could do very well with only six hours' sleep, "and by God's grace," he continues, writing when eighty years of age, "I have retained this good habit for sixty years, and do not lie awake at night a quarter of an hour in a month."

The cause of sleep is a diminution of blood in the brain. Therefore sleepless persons should avoid hard study, exciting reading or conversation, or any mental agitation for a half hour or hour before retiring. The latest meal should be taken at least two hours before bedtime, and tea, coffee, and all vegetable matters apt to decompose in the stomach and generate gas, should be excluded from it.

The *posture* in bed deserves consideration. That which is generally most easy is lying on the right side, for this affords such support to the two weighty organs, the liver and the heart, as obviates their pressing on the hollower organs around them. But no one posture should be constantly adopted, as it leads to deformity, and malposition of the inner organs.

The various artificial means in use for their sleep-producing power should be ventured upon with caution. To one, and an excellent one, however, this warning does not apply. This is a glass of *hot* (not warm) water, swallowed just before lying down. It is an admirable and simple anodyne, and will be found on trial not to be unpleasant. The use of spirituous liquors for the purpose we do not approve.

Opium and its proximate principle, morphia, is the most familiar of the medicinal preparations for this purpose. Many persons cannot bear it, on account of the headache and sick stomach it leaves behind it. It is a dangerous poison in all its forms. And "the drowsy syrups of the East" should never be used except under the direction of a physician.

Chloral hydrate has recently been introduced and much praised as a most excellent drug for causing sleep, and leaving no after-effect. The latter is true in most instances, but in every five or six persons one will be found with whom it does not agree. We shall speak of it again on a later page.

A very agreeable anodyne is the garden lettuce (*lactucarium*). After partaking freely of its leaves in a salad, a very decided drowsiness steals upon one. Its juice is employed in medicine, and acts well in many cases.

Hops also have a similar power. Sometimes nervous, sleepless persons are greatly improved by sleeping upon a pillow filled with hops. Strong hop tea is an efficient and palatable draft, taken just before retiring.

With one or other of these resources, those whose sleeplessness arises merely from nervous tension will escape their troubles. But there are cases where they fail. When this is so, the cause is of a serious character, and should be investigated with care. For obstinate sleeplessness is sometimes a forewarning of insanity, and dangerous disease of the brain.

TO ESCAPE BAD DREAMS.

Many a person, like Hamlet, is "plagued with bad dreams," which make the night a terror, and the bed a scene of torture. The horrors of the nightmare are not comparable to anything else we experience. When habitual, they usually arise from disorder of the stomach. Loading it with food, or eating even lightly of any indigestible substance, will very certainly evoke most disagreeable visions. The familiar rule about not eating anything for an hour or two before retiring, is an excellent one. We urge it upon those who are troubled in this manner.

Persons troubled with nightmare, will relieve themselves of it by taking the following draft on going to bed:—

> Take of—
> Carbonate of ammonia, six grains.
> Compound tincture of cardamoms, three drachms.
> Water, two ounces. Mix.
> Take in a single draft.

Disease of the brain may cause bad dreams, but these grave maladies are fortunately rare.

When not habitual, bad dreams are generally owing to some indiscretion in diet, to bad air, to mental anxiety, or to position, all avoidable causes. Very many suffer thus when lying upon the back, probably because, in this position, the blood centres around and presses upon the spinal column. They will find a simple and handy remedy in tying a towel around the waist, with a stout knot in it immediately over the spine. Whenever in sleep they unconsciously roll over on the back, the pressure of the knot awakens them. Nightmare or incubus nearly always arises from position, and can, in this manner, be prevented.

THE AWAKENING.

To wake a person abruptly from sleep, always produces disagreeable sensations, and to some the shock is so great that it causes faintness. Usually, it requires some minutes before we recover our complete consciousness. This should be respected, and the custom of violently and abruptly awakening persons, especially children, should be discarded. The celebrated French essayist, Michel de Montaigne, relates that his father insisted so much on the importance of this point, that he was accustomed to awake him, when a child, by playing upon some musical instrument. Possibly to this thoughtful care the rare genius of the son was in a measure due.

THE BED AND BEDCLOTHING.

Nothing which concerns health is too minute or insignificant for the hygienist. Even the art of making beds is one with which he must be acquainted.

As to the bed itself, he would advise a soft yet light material, which will allow the air to permeate freely, which will keep as clean as possible, which will offer as few homes for insects as may be, and which retains but little of the secretions of the human body. Fortunately we can take our choice between several such materials. Well-curled, clean, Russia hair, prepared sponge, springs, and especially wire, are all used extensively in manufacturing mattresses, and are all excellent articles.

In the country, corn-husks, straw, and cotton are much employed. The contents of such beds should be changed every three months, as they absorb the emanations of the body.

Old-fashioned people think a hard bed is healthier than a soft one—that it makes the young folks "hardier." The truth of this is questionable, except in certain diseased conditions. The soft feather-beds of ancient times, now fortunately almost obsolete, prevented any circulation of air around the body, and for this reason were objectionable; but nowadays mattresses are manufactured of brass and iron (wire), which are more prized by the delicately nurtured than was his couch of rose-leaves by the Sybarite of yore. And with reason; for, while soft and elastic, they do

not smother one with their billows, and prevent transpiration.

The covers should be light, barely enough to keep one warm. When heavy, they are apt to cause a sense of fatigue, and the sleeper arises with a dulness or a slight ache in his head. Next the skin, linen is most pleasant and healthful, except to gouty or rheumatic persons, or those who perspire much at night. These should invariably sleep on or between wool.

The bedclothing and the mattress should be thoroughly aired every day, and the former be clean and dry. We have known the foundation for fatal diseases laid by a neglect of the latter point. In hotels and large boarding-houses sufficient time is not given to allow the sheets to become thoroughly dry. Every traveller and visitor should never neglect to feel the sheets, and if they have even a suspicion of dampness, throw them off, and sleep between the blankets.

The bolster and pillows should not be thick, so that they lift the head more than four or five inches above the line of the body. The habit of sleeping with the head much higher than the body is an objectionable one, because it throws the spine into an unnatural position and tends to produce curvature, and also to throw the head forward upon the chest. A small firm pillow is better than none at all.

NIGHT-CLOTHING.

The pictures which are preserved in ancient missals showing the private life of our ancestors in Europe in

the middle ages, teach us that it was their custom to divest themselves of all clothing at night, and sleep nude. The modern habit of wearing night-clothes is an improvement in a sanitary point of view. But our forefathers were right in so far as they slept in none of the garments they wore during the day. These are always more or less impregnated with perspiration, and the exhalations of the body, and often with dust and smoke. It is well to throw them all off, even to the undershirt, and dress ourselves anew for bed. Night-caps, though out of fashion, should be worn by those liable to neuralgia, rheumatism, catarrhs, or pulmonary weakness, and by the bald.

The night-dress should be light, not constricted either at neck or waist by belts or buttons, and either of cotton, linen, or wool. The latter is to be recommended for feeble and rheumatic persons. The use of night-drawers might be dispensed with, as they secure no good purpose, and it is well to have the body as moderately clad as is comfortable. The night-dress, be it remembered, is *not* to give warmth. This must be done by the covers.

THE BEDFELLOW.

The close contact in which persons sleeping in the same bed are brought, influences very materially their health. Certain diseases are thus propagated, and while to some it is an advantage, to others it is the reverse.

Experience abundantly proves that when an old and a young person sleep together, the old person is bene-

fited by the association, while the younger one loses; the latter seems to transfer a portion of his health and activity to the former. The same is true of individuals with various chronic diseases; they derive advantage from sleeping with robust young people, but these latter suffer for the strength they impart.

Children should not be allowed to sleep together, nor with old people. Their constitutions may be injured, and they suffer other exposures. On the contrary, adults, elderly persons, and those of feeble circulation, are improved in health by the more equable warmth which a bedfellow imparts, and by the presence of a stronger constitution.

THE CHAMBER.

Every wise householder or house-builder will devote more care to the construction of his sleeping-room than to his parlor. In the latter he may pass an hour or two daily; in the former he certainly spends a third or a quarter of his whole time, and in a condition of body which renders him far more susceptible to unhealthy influences.

First, he will look carefully to the *ventilation*. Many plans to accomplish this have been suggested. None surpass the old-fashioned plan of having an open fireplace with an air-flue alongside of it, with a damper both at the ceiling and the floor. Fresh air has been much preached about of late, but not too much. The benefits of good ventilation at night are very perceptible. With it, we wake refreshed, and with a good

appetite for breakfast; without it, we arise with fatigue, a bad taste in the mouth, languor in the limbs, and no appetite.

In some of the barracks for United States soldiers, the authorities introduced improved methods of ventilation. The difference was straightway so perceptible that the post-commandant called attention regretfully to the much larger proportion of the ration consumed, and the consequent diminution of the post fund!

To ventilate by throwing open the windows, is often worse than not ventilating at all. We have known numerous instances where severe colds, inflammations of the lungs, pleurisies, inflammations of the bowels, and miasmatic fevers were contracted thus. It is peculiarly unsafe for travellers and those of feeble constitution. At most, a crack an inch or two in width can be left. More than this, even in summer, is generally unsafe. The amount of space which each person requires is about one thousand cubic feet; the whole of the air contained in which should be changed every hour.

Warming the room can best be effected in ordinary weather by an open wood-fire. In health, we should never sleep in a room artificially warmed beyond 50° Fahrenheit. It is enough to "take the chill off" of the air. Modern houses are heated throughout by furnace flues, which can be readily regulated. Delicate and aged persons sleep more soundly in slightly-warmed apartments, and they should prefer them.

The *presence of flowers* in a chamber is objectionable. The odor they emit, and the carbonic acid gas they evolve in the process of growth, are found to inter-

fere with the soundness of sleep. So, also, there are good reasons why no one should take one of the lower animals, a dog or a cat, to bed with them. Several diseases can be traced to this habit.

No matter how large the room, very many persons should not be put to sleep in it. Although theoretically there may be space for them all, practically it breeds disease. Physicians recognize a peculiar subtle emanation from the human body, which is greatly intensified by congregating them together, which is called "crowd-poison." It is the cause of some malignant and fatal diseases, and is the ever-present obstacle to massing men densely.

The sleeping-rooms in some of the most expensive modern houses open into a water-closet. This is a reprehensible mode of building. No matter how carefully laid is the plumbing, it is impossible altogether to prevent some foul air reaching the apartment. This oversight was the cause of the death of the late Prince Albert of England. In his case, it brought on a low fever, which soon carried him off. The use of a commode in the sleeping-room, or, still worse, of a chamber vessel, is yet more strongly to be condemned. For those who cannot dispense with something of the kind, the modern portable earth-closet is a safe, cheap, and convenient article.

SLEEP-WALKING.

Very curious incidents are narrated in medical works about those persons who have a habit of walking in

their sleep. This malady—for it cannot be regarded as anything else—is frequent in childhood, and is always a cause of anxiety to parents and associates. The popular notion that sleep-walkers never hurt themselves is far from true. Though at times they manifest extraordinary muscular power, there are not wanting instances where most serious results have happened, as, for example, where persons have walked out of windows or fallen from the roofs of houses.

Some of the adventures of somnambulists could hardly be credited, were they not on authority that leaves no room for doubt. A trustworthy author relates that a boy got out of bed, scaled a steep rock near the house, so precipitous that it would have baffled an expert mountaineer, and brought from the summit an eagle's nest.

In other instances the accustomed labors of the day are continued. An Italian waiter, named Negretti, would often repeat in his sleep the accustomed duties of the day, and would carry trays and glasses about, and spread the table with great accuracy, though his eyes were firmly closed all the time.

Often it is observed that the eyes are wide open and staring, although "their sense is shut," for no notice is taken of lights, and the walker runs against objects in his way. In other cases, the somnambulist may use his eyes naturally, though he is in reality asleep. Castelli, whose case is vouched for by an Italian physician, was found one night sound asleep, but translating a French book into Italian, and looking out the words in a dictionary! When his candle was extinguished, he arose and went to seek another light. When any

one conversed with him on any subject on which his mind was bent at the time, he gave rational answers; but he seemed to hear nothing that was said to him on any other topic.

This activity in sleep is generally acquired during youth, and it is at that period that efforts should be commenced to break up the habit, or, still better, to prevent it. It has been noticed that children who are allowed to go to sleep on the floor or lounge, and who are aroused into a state of half-consciousness, and sent to bed, will in time acquire the habit of rising and walking in sleep. Hence the rule should be enforced that they should go to bed before falling asleep, and, once asleep, any disturbance of their slumbers by being carried from one room to another, or the like, should be carefully avoided.

The cure of the habit, when once formed, is not easy. Some have attempted by tying themselves to the bedstead to prevent their walking; but this has occasionally resulted in injurious sprains, and at other times the sleeper, with perverse ingenuity, unties the knot. Our opinion is that, in nearly every instance, if the sleeper will avoid sleeping *on the back*, he will break up the habit. This can readily be accomplished by fastening a towel around the body, with a large hard knot in it just over the backbone; so that when in sleep he unconsciously rolls over on his back, the pressure of the knot will awaken him. The popular remedy of dashing a basin of cold water into the face of the somnambulist, though efficacious, causes too violent a shock to be altogether safe.

CHAPTER VIII.

THE PREVENTION OF SPECIAL DISEASES.

SECTION I. HEREDITARY DISEASES. The prevention of consumption and scrofula; of insanity; of epilepsy; of diseases of the heart; of gout.

SECTION II. DISEASES INCIDENT TO CERTAIN OCCUPATIONS. The dangers of mental labor; Diseases incident to indoor occupations; To workers among lead and paint; Workers in copper; in phosphorus; in iron.

SECTION III. CONTAGIOUS DISEASES. How to avoid contagious diseases in general—The use of disinfectants; Carbolic acid; Permanganate of potash; Sulphate of iron; Sulphur; Charcoal; Quicklime; Fresh earth; The earth-closet.

SECTION IV. SPECIAL CONTAGIOUS DISEASES. The prevention of scarlet fever; Smallpox; Typhus fever; Typhoid fever; Swamp fevers; Cholera; Hydrophobia.

SECTION V. DISEASES NOT CONTAGIOUS. The prevention of apoplexy and palsy; Indigestion and dyspepsia; Diarrhœa and dysentery; Worms; Diseases of the skin; Sea-sickness; Diseases of the eyes.

IN the previous pages we have attempted to give in brief outlines those principles which must govern the individual in the ordering of his daily life. We now approach a part of our subject which is of the utmost importance, and yet is one which is almost altogether neglected in every work on hygiene, whether popular or technical. We refer to the special precautions which it is proper for us to take, so as to avoid contracting any particular disease to which we may be exposed. As almost every month of our lives we are forced by circumstances to

incur the risk of such exposure, it is of the utmost importance, for our own sake and for the sake of those who love us or who depend upon us, to learn and to use the means which science provides to escape the contagion. These we shall now give, and, we believe, for the first time in any connected manner.

With this purpose in view, all diseases naturally present themselves in two classes: those the tendency to which we have inherited from our parents, and those to which we are liable incidentally. This exposure may be either owing to the transmissible nature of the disease, or to the avocation in which we are employed.

I. Hereditary Diseases.

We have called attention at considerable length in our previous works (*The Physical Life of Woman*, and *The Transmission of Life*) to the marvellous facts of hereditary transmission, and have shown that parents bequeath children not only houses and lands, but ineradicable proclivities to disease and suffering, aye, almost to misery and crime. Those three maladies which destroy annually more than one-fourth of all who die—pulmonary consumption, scrofula, and insanity—are peculiarly the legacies of ancestors. The child is born with a fatal liability to them, and only by most judicious training in youth, and by unremitting diligence in age, can he escape the uniform tendency to premature death or loss of mental power.

There are other hereditary diseases, less terrible in

their nature, but not less desirable to avoid, such as gout, rheumatism, asthma, epilepsy, and heart disease. This is an ugly list, and the more grateful should we feel, therefore, that science has provided means which, if early and sedulously employed, will enable our children to erase their dreadful imprints from their constitutions.

TO AVOID CONSUMPTION AND SCROFULA.

These are at once the commonest and the most fatal of all the hereditary taints. We class them together, because many eminent observers consider them convertible diseases—*correlated*, as the scientific term is. Moreover, the precautions to prevent their development are, in many respects, the same. These precautions range themselves under three headings: education (physical and mental), occupation, and marriage.

EDUCATION.

This should commence *before birth*. The intimate relationship of the mother's mind and body with the well-being of her unborn babe is now fully recognized by physicians. We have, however, given such extended directions on this subject in the first of the works above alluded to, that we shall not enter upon it here.

After birth, the first point that demands attention is the nourishment of the infant. This should always be healthy human milk. If the mother is strong, and

has abundance of milk, there is no objection to her nursing her own child; but if herself feeble, or suffering from disease, a healthy wet-nurse should be procured. Still more important is it that a nursing infant, whose mother has the disease, should be immediately taken from the breast and intrusted to a wet-nurse. The health of the mother as well as the infant requires this.

If the father has the disease, and the mother's milk is inadequate or of poor quality, and the infant is under the age of six months, the same change should be made, rather than supply the deficiency by artificial feeding. Children who are weaned, should have plain but nutritious and easily digested diet, a part of which should be milk. If the predisposition to consumption is strong, a little alcoholic stimulant may be allowed three or four times daily in the milk, though with the risk of creating an appetite for it. To an infant, two or three drops of Bourbon whiskey may be given for each month of its age, and to children of three to five years a teaspoonful.

Residence in an airy and salubrious locality, outdoor exercise, a scrupulous avoidance of exposure by which a cold might be contracted, are necessary in order to the continued latency of the tendency. Loss of flesh or appetite, or other evidences of failing health, indicate the need of additional measures of a therapeutic character.

Iron, with cod-liver oil, iron and quinine, elixir of calisaya bark, or other tonic, should be employed in connection with the alcoholic stimulant and suitable

regimen. By the employment of such precautionary measures, as soon as indicated, multitudes of children might be saved from this disease, who now perish.

The three requisites for the baby's health are: fresh air, cleanliness, and sufficient warmth. The general treatment of infants, which we have recommended in our work to mothers, will meet most of the requirements in these special cases.

As soon as intelligence dawns, mental training must begin. The child should be managed with tenderness but firmness, no undue stimulation of the faculties should be allowed, no desire to develop precocity exhibited. Scrofulous children are very frequently bright beyond their years, and indiscreet parents often urge them to studies which are perilous to their future. Such children should be retarded in their mental growth, and have their aspirations directed to physical rather than intellectual superiority.

The decade between eleven and twenty-one years is the most critical period of life for scrofulous and consumptive children. The precautions proper at all times should then be redoubled, and a new element—the control of the passions of the sex—enters upon the plan, and a most important one it is.

OCCUPATION.

The debilitating effects of impure air and in-door employments show themselves very soon in such individuals. It is, therefore, desirable that a taste should be cultivated for pursuits and employments which

keep one constantly in free exercise in the open air, and give occupation to the mind without excessive fatigue. Exercise in a pure air is perhaps the most powerful preventive agent in these diseases which can be suggested.

The medical statistics of England show that consumption is less prevalent in the interior than near the sea (being in this respect the reverse of heart disease). Avocations which are connected with maritime commerce are therefore not desirable.

It is credibly asserted that artisans in copper, and workmen in tallow-chandleries, are very much less subject to consumption than others. On the contrary, printers and other indoor operatives, who are employed in rooms where much gas is burned, suffer from it to an unusual degree. One gas-jet consumes more air than three men, hence the unhealthiness of brilliantly lighted apartments.

Drovers, and others, whose business requires them to be on horseback several hours daily, rarely die of consumption. Probably no variety of movement is more advantageous for those suffering from pulmonary debility than this.

Any occupation which forces one to breathe an atmosphere laden with dust is injurious to the lungs, and in the predisposed will excite the disease of which we are speaking. Grinding, polishing, wood-sawing, mining, etc., are included here. When, as is often the case, there is no choice but to continue them, entire prevention of their ill effects can be secured by a very simple contrivance called a "respirator," a disk of

porous material worn over the mouth and nose, which will admit the air, but effectually exclude dust, gases, dampness, etc.

The best respirators are made of charcoal, which is an excellent disinfectant, and purifies the air, as well as prevents the inhalation of any dust. A cheap and convenient one is a small and fine sponge; or, one can readily be improvised by quilting a few layers of cotton together.

The question of *marriage*, which is one of the utmost importance in this connection, we have so completely answered in our books addressed especially to the sexes, that we need not repeat here what we there have said.

SPECIAL DIRECTIONS.

In addition to these general rules, there are some special directions we shall give. A member of a consumptive family, no matter how apparently robust, should always remember the family tendency, and take precautions against it. He should invariably wear flannel next the skin, winter and summer. Exposure at night should be avoided as much as possible. Dampness must be shunned. The food should be light, palatable, and nutritious. Free use should be made more especially of the fat and heat producing articles, such as fat meat, oil, sugar, milk, butter, and starchy matters. Coffee and chocolate are beneficial, but tea is not to be recommended, as it possesses the power of increasing the action of the skin, which is an injurious tendency for consumptives.

Those modes of exercise should be adopted in the first instance which warm the extremities while they give only moderate action to the lungs. As vigor increases, those which increase the rapidity of the respiration and act directly on the expansive power of the lungs should be commenced. *Fatigue should never be incurred*, beyond a slight degree. The direct exercises of the lungs are by deep voluntary inspirations, and by speaking with a loud voice or singing. The former of these is very efficacious, and should be practised for fifteen minutes at a time, twice or thrice a day. The plan is simple. Standing erect, the hands at the sides, the shoulders thrown back, draw in the breath very slowly until the lungs are completely expanded. Retain the air a few seconds by an increased effort, then slowly expire it. Breathe naturally a few times, then repeat the inspiration, first expelling all the air possible from the chest. The eminent Professor Piorry, of Paris, even asserts that by this means those already clearly consumptive can (with other treatment) save themselves.

Loud speaking and singing unquestionably have a good effect, but are inferior for developing the chest to the plan just described.

PREVENTION OF SCROFULA.

For the prevention and also for the cure of scrofula, when not too far advanced, there is the strongest testimony in favor of a residence of several months by the

seashore, and sea-baths twice daily. No plan of treatment is anything nearly so successful.

So well established is this fact, that a charitable society in Paris has instituted a large hospital on the seashore at Berck, France, for the gratuitous care of scrofulous children. The success has been most gratifying, even severe cases being restored to health in a few months. The patients who recover the most rapidly are those with scrofulous swellings under the jaws and on the neck, those with cold abscesses, white swellings, or stiff joints. The sores are washed twice daily in the sea-water, and carefully dressed. The children are encouraged to pass the time in the open air whenever the weather is pleasant.

Even the most severe cases are rendered more comfortable, except those where the disease has attacked the eyes (scrofulous ophthalmia) or the bones.

THE PREVENTION OF INSANITY.

In many respects the most fearful of all diseases is that which destroys the intellect, yet leaves life and seeming health. Very frequently, it is said in about one-third or one-half the cases, this sad condition arises from a transmitted tendency, which is aroused into action by some train of events, or bodily condition. Good results are certain to attend the resolute employment of the means here suggested by preventive hygiene. A careful study of the causes that excite the outbreak teaches us what to avoid.

Insanity is not a disease of childhood. It is very

rare before the age of puberty. From that period to twenty-five it is more common; and increases in frequency as life advances.

The alarming fact has been placed beyond dispute that there is a steady increase in the insane population of this country as well as France and Great Britain, an increase more than proportionate to the sane population. The causes of this we must seek in the extreme mental tension required by the close struggle for money in modern life. When this does not overturn the intellect of the individual, it may implant the seeds of a perversion of faculties in his offspring. Then, too, the excessive overcrowding of the poorer population in the great cities, and the increase of unhealthful employments, lead to mental infirmity.

When there is any suspicion of a tendency to insanity in a family, the parents should aim with unswerving care at two points in the education of their children: first, to develop them to the utmost physical health; secondly, to lead their minds to a constant occupation with outward things, to sedulously prevent solitary contemplation, and all introverted mental activity.

To accomplish these, the rules of hygiene in the training of children and youth should be carefully observed. The parental control should be exercised in a uniform, gentle, yet firm manner. The attention should be directed early to practical matters, all attempts at rapid acquisition of knowledge avoided, and every species of undue excitement of mind or body discountenanced. Politics, emotional religion, and

speculation send annually in this country hundreds upon hundreds of victims to the insane asylums. Violations of the passions of sex, as we have elsewhere shown, account for nearly one-sixth of their inmates. Over-work and under-feeding have also their quota.

Calmness in passion, moderation in ambition, and life in action and not in thought and feeling, are the golden rules which must be obeyed. "I cannot but think," says Dr. Maudsley, the most eminent authority on the subject of insanity in Great Britain, "after what I have seen, that the extreme passion for getting rich, absorbing the whole energies of life, does predispose to mental degeneration in the offspring—either to moral defect, or to moral and intellectual deficiency, or to outbreaks of positive insanity." If father and son both follow out the dictates of this absorbing passion, the results here pictured are far from rare.

INSANITY FROM INDIGESTION.

Regarding the physical health, perhaps no portion of the body requires more attention than the digestive organs. In a recent report of a State institution for the insane, we notice that the superintendent remarks that in observing the varied cases of insanity which come to asylums for treatment, quite a large proportion of them, nearly one-half of the whole number, have a morbid condition of the brain, which has been induced by dyspepsia long continued. Such cases are difficult to treat, require much care, and are not easily cured.

Early attention to the digestive organs by applying proper diet, and the use of the right kind of medicine, together with healthful exercise in the open air, without being carried to fatigue, would rescue many from the vortex of insanity into which their physical disease is fast plunging them. In such instances, any lurking hereditary mental taint is developed with fearful rapidity, and hence the vital importance of the timely and prompt correction of indigestion or incipient dyspepsia.

CHILDBED INSANITY.

There is a variety of insanity, not very infrequent, which makes its appearance after childbirth in women. Investigation into family history often proves that this is the outcrop of a hereditary mental taint. Where, therefore, there are any reasons to suspect the presence of such a liability, it is of importance to be extremely guarded during pregnancy, and at the time of sickness, that no violent shock or emotion is experienced, and that the labor be conducted to its termination naturally and promptly.

Those who dread an attack of insanity, or who suffer from a general disordered condition of the nervous system, with depression of spirits and sleeplessness, which may be the incipient stage of the disease, will act most wisely to enter a hospital or asylum devoted to the treatment of these diseases.

INSANE ASYLUMS.

We wish at this point to correct a pernicious error which is abroad among the public. Some people honestly believe that sane persons are frequently, either from mistaken or from improper motives, placed in hospitals for the insane, and kept there against their will. We can most positively assure them that such an opinion is an utter error, fostered by sensational writers, who have no regard for truth, but only care to write striking articles. Such extreme caution is used by law in every commonwealth of the United States, that such an occurrence is next to impossible; and we believe it safe to say that not a half dozen instances are on record in this country where sane persons have been proven to have been unlawfully confined.

Questions of much more importance to the public are, whether there is no loss in neglecting the care of those who have mental diseases, and whether there is no danger incurred from those thus affected not being sent to hospitals, or being left without proper attention and unrestrained in their movements.

The first of these questions is readily answered, as all experience goes to show that, properly treated, insanity is, in its early stages, in a large proportion of all the cases, a curable disease, and that, allowed to become chronic, it is exactly the reverse.

The second question may be answered by the simple statement of the fact—which can hardly have escaped the notice of any one who carefully observes passing events, and which can be readily verified—that during

any year, in almost any newspaper, there are recorded nearly a hundred cases in which lives have been lost, or placed in the greatest jeopardy, owing to persons laboring under insanity being left unrestrained and unguarded in their movements. A large proportion of all these—far more than a majority—might have been saved, had the warnings which, to those familiar with such cases, were clear and unmistakable, been heeded: while the consequences of neglect are irreparable and often destructive to the happiness of whole families.

This simple statement of facts, without any allusion to the unfortunate effects upon entire households, from the continued presence of these cases, and the loss of property incident to incapacity for business management, is enough to show that this is no trifling question, and that a fearful responsibility is incurred by those who in any way contribute to this state of things. This subject certainly deserves much more attention than it receives, for while every supposed case of unnecessary restraint is abundantly commented on, these terrible catastrophes—without furnishing one or more of which scarcely a week passes—rarely receive more than a passing notice.

EXAMPLES OF INSANITY.

The exciting causes of insanity, which it is imperative upon those who have any tendency to it to avoid, are well illustrated in various plays of Shakespeare. In King Lear the feeble powers of an aged man are

crushed by desertion, want, and ingratitude. The "fair Ophelia" forfeits her sanity to grief for a father's death and a lover's coldness; and Timon of Athens, through loss of fortune and friends.

THE PREVENTION OF EPILEPSY.

Epilepsy, or falling sickness, in about a third or more of the cases which occur, is a hereditary disease, and therefore, when either parent has been subject at any time in life to fits, it is of the highest importance that the children should be subjected to those rules of living least calculated to develop the tendency.

Diet, here, stands foremost. A rich meat diet should be shunned, and plain food, wholly or nearly wholly vegetable, should be substituted. Sometimes this alone is sufficient not only to prevent but to cure the fits. Some physicians recommend that simple bread and water should be the staple articles, but we need not be this rigid.

Another recommendation is, that every indigestible article shall be excluded, whether vegetable or not; that the amount of food taken be always moderate, and that the bowels should be kept perfectly regular. Instructions for this purpose will be given in our article on "Constipated Bowels." (See Index.)

Children troubled with worms are liable from this cause to have the fits provoked, and therefore parents, who have reason to fear such a tendency, should watch closely, and at the appearance of those symptoms which indicate the presence of worms (to be described

hereafter) they should promptly administer an efficient vermifuge.

At the period of puberty, when the system undergoes such profound changes, and is exposed to serious disturbances, epileptic fits are apt to develop themselves. In our other works, the *Physical Life of Woman*, and the *Transmission of Life*, we have gone minutely into the hygiene of this epoch of life, and to these treatises we must refer our readers.

Dr. Jackson, of Boston, relates the case of a young boy, who was brought to him for epilepsy. He gave him a purge, and the recommendation to eat only vegetable food, in moderate quantities, at regular hours (never between meals), and to keep his bowels open. The boy obeyed, and never had a fit but once afterwards, and that was once when he ate immoderately of green apples. This anecdote illustrates not only the efficacy of diet, but the danger of excess.

As anger, over-fatigue, and excitement predispose to the fits, constant caution should be exercised in these respects. Indeed, the means of preventing epilepsy may be summed up in the advice to live a sober, temperate, regular life. The use of tobacco, alcoholic drinks, tea, and coffee should be done away with altogether.

TO PREVENT DISEASE OF THE HEART.

Medicine, which aims at reducing the amount of disease, is sometimes obliged to confess that all her efforts are vain. This is the case with heart diseases.

They are unquestionably *on the increase*, and especially so in America. The explanation is that as a nation we live too fast, are exposed to too great excitements, to over-stimulation, to excessive and spasmodic exertion—all well-known causes of heart disease. Physicians have called attention to the fact that this increase is greatest in the large commercial marts, and in California and other new States, where the agony of competition is the keenest.

The tendency to the disease must be combated by a deliberate renunciation of the causes which we have mentioned. Excitements must be shunned, and a calm and sober life chosen. To the predisposed, narcotics are, however, as bad as stimulants. Tea, coffee, and tobacco must not only be limited, but renounced. Exercises should be sought which impart strength to the extremities, but do not call for any very active exertion, and do not excite the action of the heart, such, for example, as the Indian clubs, the light dumb-bells, etc. Dancing, running, leaping, and swimming are injurious, if not dangerous.

When possible, a residence should be chosen on or near the seashore. An eminent English medical statistician, Mr. Haviland, has conclusively shown that residents on the coast are decidedly less subject to this class of complaints than those dwelling inland.

THE PREVENTION OF GOUT.

The hereditary predisposition to gout is so marked, that it can be traced in fully half the cases the physi-

cian is called upon to treat. The general nature of the disease is the reverse of that of consumption. In the latter, there is a want of nourishment; in the former, an excess of it; or, as Professor Niemeyer expresses it, there is a disproportionately large supply of food for the demands of the system. In fact, gout is a disease hardly ever seen in hospitals, because it is the penalty of the rich, the luxurious, and the gourmand.

But, when hereditary, ordinary moderation will not suffice to escape its visitation, and some additional precautions must be taken. The food should be largely vegetable; meat should be taken but once a day; spices must be used very moderately; and "set dinners" firmly declined. Alcoholic beverages of all kinds, whether malt, vinous, or spirituous, must be absolutely interdicted. They are poisonous to a gouty person. The same is true of tea and coffee. Although they do not furnish nourishment themselves, they aid to store up the nourishment in the system, which, in this complaint, is precisely what we wish to avoid. Drinking large quantities of water, on the contrary, should be cultivated. This hastens the discharge of effete matters, washes them out, as it were, and cleanses the system from matter which would otherwise clog its motions. Mineral waters which contain salt, and those which act as laxatives, are very appropriate. They reduce the plethora, which is usually present, and act very perceptibly on the general feelings.

Not less essential is abundant and regular exercise. A lazy, do-nothing life is very certain to bring on the

disease years earlier than it would come, were the body actively employed. It is the more important that this warning should be heeded in time, for after one severe attack of gout, the individual never feels quite so able to undertake muscular exertion as previously.

II. Diseases Incident to Certain Occupations.

In the crowded walks of daily life, where our wants are so imperative, our responsibilities so heavy, and competition so desperate, many a one is forced into methods of gaining a livelihood which are attended with special dangers to the health. Modern sanitary science, ever on the alert to guard the interests of humanity, has suggested many important measures which can reduce the unwholesomeness of various arts. We shall briefly give the fruits of such research, so far as they touch upon some of the more prominent occupations.

The avocations of modern life may be considered as divided into those which demand mental labor, and those which demand physical labor.

THE DANGERS OF MENTAL LABORS.

Although, at the first thought, these might not strike us as attended with any special dangers, they are in fact accompanied with peculiar and marked ones. As has been justly remarked by a distinguished London physician, "Our educated, ambitious, over-straining, untiring, mental workers are the breeders

and intensifiers of some of the worst forms of physical malady."

The most distinct forms of these diseases are palsy, disease of the heart, and diabetes and other diseases of the kidneys. Physicians and lawyers are prone to affections of the kidneys and partial or general palsy. The latter gives warning of its approach by signs which, however marked, are often neglected by medical men themselves. The most characteristic is a sensation on the part of the person threatened of necessity during any mental effort for frequent rest and sleep. When this condition exists, the slightest shock tells on the nerves, and transforms the impending malady into a dread reality.

Dramatic artists, owing to the excitement attendant on their avocation, are very liable to heart disease, dyspepsia, and paralysis.

The ardent business man and speculator, intent on his own schemes, full of anxieties, sinking all other considerations in the one great greed of gain, is very frequently interrupted in the midst of all his plans and projects by the gaunt finger of Disease, appearing as a sudden palsy, an insidious softening of the brain, or an actual outbreak of insanity.

The clerk and book-keeper are free from the anxieties of large investments, and their employment is almost mechanical. The disorders arising from their occupation are confined chiefly to dyspepsia, piles, and general debility.

The *means of prevention* do not consist in idleness and mental vacuity. Far from it. It is well ascer-

tained that mental work carried on with evenness and order, even hard mental work, so far from being harmful, is actually conducive to health and length of days. It is far healthier than mental inaction, or engagement in trivial and frivolous subjects. But the source of the evils, and that which under all circumstances is to be avoided, is *extreme mental strain*. No persistent and prolonged taxation, much beyond the usual degree, should ever be attempted. The desperation of business competition must be diminished. The terrible anxieties attendant upon great pecuniary risks must be avoided. The imperious demands of ambition must be modified. The engrossing troubles of publicity must be shunned.

> "Learn thy little bark to steer
> With the tide, and near the shore."

Is it replied to this that we are asking impossibilities? That the man once in the vortex of American business life can no more extricate himself than if he was in the rush of the Maelstrom? That these strains and anxieties are inseparable from all success, and even attempts at success? We sadly feel the truth of much of this, but it does not in any way impeach the wisdom and the needfulness of our advice. Nature's laws are more inflexible than iron, they alter not, and he that disobeys them dashes himself against a wall. The frequency with which death, palsy, and insanity strike down our business men proves it only too conclusively.

DISEASES INCIDENT TO INDOOR OCCUPATIONS.

All persons whose occupations require them to pass their time indoors are more liable to consumption, scrofula, and low fevers than those who enjoy the benefits of a free and pure air. The disadvantages of indoor occupations can, however, be remedied, and in time will be when hygienic principles will prevail in the construction and furnishing of work-rooms and residences. Perfect ventilation, judicious warming, and complete sewerage are what are most needed in modern architecture, but it is sad to see how they are neglected in order to save a few dollars.

WORKERS AMONG LEAD AND PAINT.

These include a great variety of occupations, such as painters, glaziers, plumbers, color grinders, foundry men, many factory operatives, shot manufacturers, potters, etc. They are all exposed to the action of lead.

This metal, so useful in the arts, is at the same time a dangerous and insidious poison. It creeps into the bodies of those who work in it, and destroys their health; some feel its noxious effects quickly, others only after the lapse of years; but very few escape them. It is well known that its absorption leads to the complaint called "lead-colic" or "painters' colic," and also to that peculiar palsy of the arm known as "wrist drop." Many workers in it suffer from a sensation of weight and tightness in and around

the chest; all have more or less disrelish of food and imperfect digestion; and the end of many is by a general palsy, and kidney disease. Those who are poisoned by it have a dejected look, a sallow skin, a lagging walk, and if the edges of the gums be examined, just where they join the teeth, a gray leaden line will be noticed.

The treatment of this condition will not occupy us here, but its *prevention*. This can be accomplished by a rigid observance of the following rules:—

All workers among lead should, before commencing or resuming their work, wash their hands, not once, but many times a day, in a strong decoction of oak-bark, which will protect against the action of lead.

The hair of the workman should be kept short, as this prevents it from accumulating fine particles of lead.

All painters should wear, during their work, clean cloth caps. All their clothes should be made of materials that can be easily washed.

The workman's hands should always be washed before he touches his food; and, if they be stained with paint, they should be dipped into the oak-bark decoction.

The mouth should always be well rinsed with cold water before food is taken. We would suggest the use of a weak oak-bark decoction as a wash several times a week.

The food should contain a large proportion of fatty substances. Milk should also be taken in large quan-

tities. It counteracts to an extraordinary degree the poison from lead.

The body should be sponged night and morning with cold or tepid water, and the hair should be washed thoroughly every evening after work.

When men or women are exposed occasionally to the fumes of lead, folded muslin, or a handkerchief, should be placed over the mouth; the outer layer of the band having been previously soaked with oak-bark decoction, and then wrung out.

Employers and foremen should see that facilities to carry out these directions are given their employés, as by their rigid observance the danger from the metal is almost entirely obviated. The fumes and bad air of the establishment should be carried up a special ventilating shaft, worked by a fan. White-lead should always be ground under water as is now done in many large mills.

To counterbalance these evils, it is generally and probably correctly believed that workers in lead are not so liable to consumption as other indoor laborers.

WORKERS IN COPPER.

Those employed in working this metal usually have distinctly marked green stains on the teeth, and even greenish hair. Although an unhealthy-looking class of men, and not long-lived, they seem subject to no particular disease except general debility, or a weakness of the whole muscular powers. It is a remarkable fact, on the other hand, that they escape almost

entirely attacks of cholera, or cholera-like seizures, when those diseases are epidemic around them.

WORKERS IN PHOSPHORUS.

These are liable to most severe and terrible diseases of the bones, brought on by inhaling the fumes of the substance; especially the jaw-bones become affected, and occasionally have to be removed. Operatives in lucifer match manufactories, and in the preparation of the commercial article, are the principal sufferers.

Fortunately, modern science has discovered a simple, handy, and cheap antidote to these baneful effects. It is to wear a sponge over the mouth and nose, which has been dampened with ordinary *spirits of turpentine*. This entirely neutralizes the poisonous action of the phosphorus.

WORKERS IN IRON.

Though there is nothing poisonous in this metal, the operatives in nail factories and other iron works, where the air is loaded with particles of the metal in impalpable powder, are known to be generally short-lived. Many of them are carried off while still young by the disease known as "nailers' consumption," a form of chronic pneumonia. Their health also suffers from the alternation of heat and cold to which they are exposed, the furnaces being usually located in open or partially open sheds, and the smelters working either

naked to the waist, or with loose shirts. The use of respirators, and heavy flannel shirts, will obviate most of these dangers.

DISEASES OF POTTERS.

Potters are subject to what is called "potters' asthma," which is a variety of consumption of the lungs, and which carries many of them off in middle life. It is caused by the dust and gases in the atmosphere of potteries, and is not dissimilar from the other diseases caused by the same agents in other trades; for, as Dr. Greenhow observes, "the nature of the substance inhaled appears to be of secondary consequence as regards the ultimate result, excepting that the heavier and more penetrating kinds of dust, such as angular parts of grit, more speedily excite serious disease than the lighter kinds."

To ascribe to these diseases their direct causes is not a difficult task; these are the inhalation of mechanical and chemical irritants, an over-heated atmosphere, and a deficient supply of oxygen.

"Potters' asthma" is a dangerous disease. It commences with a "bad cough," and will in a few years prove fatal unless the employment is given up betimes, in which case it usually disappears with ordinary attention to the general health.

III. Contagious Diseases.

HOW TO AVOID CONTAGIOUS DISEASES IN GENERAL.

Physicians have given much attention to the question how diseases are extended. Their conclusions deserve close attention, for upon them, of course, depends the nature of the precautions we should adopt to avoid contracting maladies. We shall briefly state what they are, carefully avoiding technicalities and vexed questions.

CONTAGIOUS DISEASES.

Contagious diseases are those which can be communicated by the touch or immediate presence of the patient himself, or from some material derived from him; such, for example, as smallpox, scarlet fever, and typhus fever. *Infectious* diseases are those produced by some poisonous matter in the atmosphere, which is not produced or increased by the human body; of this class are ague, typhoid fever, etc.

It will readily be seen that, in diseases of the former class, our cares should be directed to avoid unnecessary contact with the sick, to take all possible precautions that they do not unnecessarily communicate with others, and to destroy as much as possible whatever poisonous matter they create. In those of the latter class, many such precautions are useless and needless, and our attempts should be pointed to changing the character of the surrounding atmosphere by

enforcing stricter sanitary regulations. Both these aims can be attained in great measure.

HOW TO AVOID CATCHING A DISEASE.

Whenever we have occasion to visit a person sick with a contagious disease—and it becomes the duty of every one to do so some time or other—no excessive fears should be allowed to take possession of the mind. In the first place, they are needless and unmanly, and, secondly, they actually predispose the system by lowering its tone, to become an easy prey to the enemy so much dreaded. Shortly before entering the house, or the room, something should be eaten or drank, as when the stomach is active the contagious poison is in a measure repelled. Hence, after a meal, is a good hour to choose. We have known physicians to carry with them crackers, and take a few mouthfuls before entering the room of patients with such diseases. The plan is a good one.

Some believe that the poison of a sick-room is conveyed to the system through the spittle, which first comes in contact with the impure air in the mouth, and is then swallowed. It is well, therefore, to eject and not to swallow it, when so exposed.

Cleanliness of the person tends to prevent contagion, therefore those exposed should bathe morning and evening, and change their clothing daily.

Immediately, on leaving the sick-room, a brisk walk of a fourth of a mile or so will thoroughly air the clothing and excite the nervous forces to throw off the

poison. The latter may also be accomplished by the use of a stimulating draught, as, for instance, one composed of ten grains of carbonate of ammonia in a wine-glass of water. The use of alcoholic stimulants for this purpose, so popular in many localities, is to be condemned. They leave the system in a state of prostration, which not merely exposes it the more readily to the poison of contagion, but leaves it the less able to offer resistance. Strict abstinence is always to be enjoined.

It is not well to sleep in a room with a patient with a contagious disease. Hence, when called upon to watch a night with the sick—which every humane person is willing to do—it is more prudent to take a book and keep awake the whole night. When asleep, the system is relaxed, and offers less resistance to contagion.

The odors of vinegar, of camphor, of hartshorn, and many other substances, have, at times, enjoyed some reputation as preventives of contagious poison. Modern chemical science has overturned most of these beliefs, and branded them as popular delusions. To make amends for this ruthless destruction of pleasant and harmless fancies, however, it has brought forward a class of agents which depend for their reputed efficacy not on the imagination of the populace, but on a wide experience of scientific men. They are called *disinfectants.*

THE USE OF DISINFECTANTS.

These substances claim from us, in this connection, a special attention.

Many of them have been prominently brought before the public of late years, but not all of them deserve the praises which the advertisements bestow on them. It would be of no advantage to our readers to rehearse their comparative merits, so we shall mention only a few which combine the advantages of being the cheapest, the most efficacious, and the simplest.

First and foremost, as unquestionably the best of all, we place

CARBOLIC ACID.

This is a liquid prepared from coal tar, without color, and of a strong, smoky, penetrating odor, like creasote. It possesses the power of destroying nearly all forms of minute life, and is most distasteful to vermin of every description. No moth or mosquito will enter a room which is scented with it; no bedbug will remain in a bed which has been sprinkled with it; and rats and roaches vacate their haunts which have been dampened with it. Meat, exposed to its vapor, does not rot, but shrivels and dries up. Rubbed up with lard and used as an ointment, it is a sovereign remedy for fleas, lice, and itch on the lower animals. And it seems to act with not less power on the mysterious contagious poisons thrown out by persons with communicable diseases. Their rooms, clothing, beds, and discharges should be exposed to its action, when the odor is not unpleasant to them.

Unfortunately this is the case in very many instances, and as the smell is very permanent, it is im-

possible to use it very freely in the house. To purify privy-wells, sewers, sinks, hog-pens, and similar places, there is nothing superior.

The common impure carbolic acid is cheap, and can be mixed with water in the proportions of an ounce of acid to a gallon of water for ordinary sprinkling purposes.

Cresylic acid is a very similar preparation, and one which has the same properties.

Next to carbolic acid, we rank as a disinfectant

PERMANGANATE OF POTASH.

This substance comes in a solid form, in beautiful dark crimson crystals, and when dissolved in water forms a rich, claret-colored solution. Half an ounce, or about a tablespoonful, dissolved in a gallon of water, forms an excellent disinfecting fluid. It has no disagreeable odor, and the only objection to its use is that it stains the linens, etc. For a wash to foul wounds, and to place in shallow saucers in the corners of rooms where the sick are present, it is well adapted. Cellars which have an unpleasant odor, musty closets, and close rooms should be purified in this manner.

SULPHATE OF IRON,

Which is familiar to all under its common names of copperas and green vitriol, is one of the best of disinfectants, and a cheap one also. It can be either dissolved in water, or mingled with lime and powdered.

If dissolved, the liquid should be used at once and not kept on hand, as it forfeits a part of its strength on exposure to the air.

SULPHUR

Is another handy and valuable substance for this purpose. It has some peculiar advantages where we wish to disinfect a person, a carriage, closet, etc., by fumigation. A "ready method" of doing this has recently been recommended in the English journals, which deserves to be generally known. In the case of disinfecting beds and bedding, five to fifteen minutes before the patient enters the bed, or during his removal whilst it is made, a copper warming-pan, containing a few live embers, on which a teaspoonful or two of flowers of sulphur have been thrown, is to be introduced between the sheets, and passed to and fro until the combustion of the sulphur is completed, when the pan is to be withdrawn; and, after a lapse of a few minutes, the patient may enter the bed, when, should the fumes still prove too stimulating for him to breathe, these vapors may be intercepted by holding a loosely folded damp handkerchief before the nose and mouth until they have subsided. In localities where a copper warming-pan is not procurable, a common wicker handbasket, or a small hamper, containing an old iron saucepan or flower-pot, or basin, in which a few hot cinders have been placed, may be substituted. This, like the warming-pan, must be put beneath the bedclothes, and moved about during the burning of the

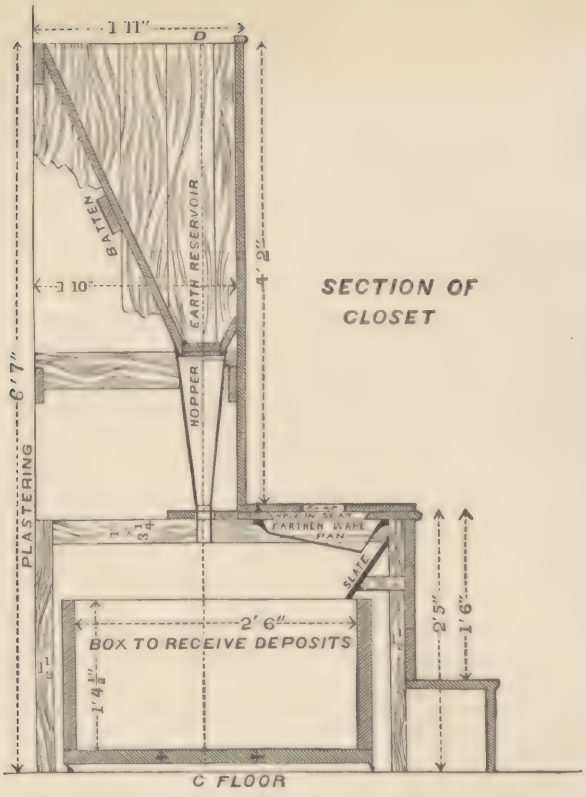
sulphur, until the gas has sufficiently permeated the linen, etc., to be disinfected.

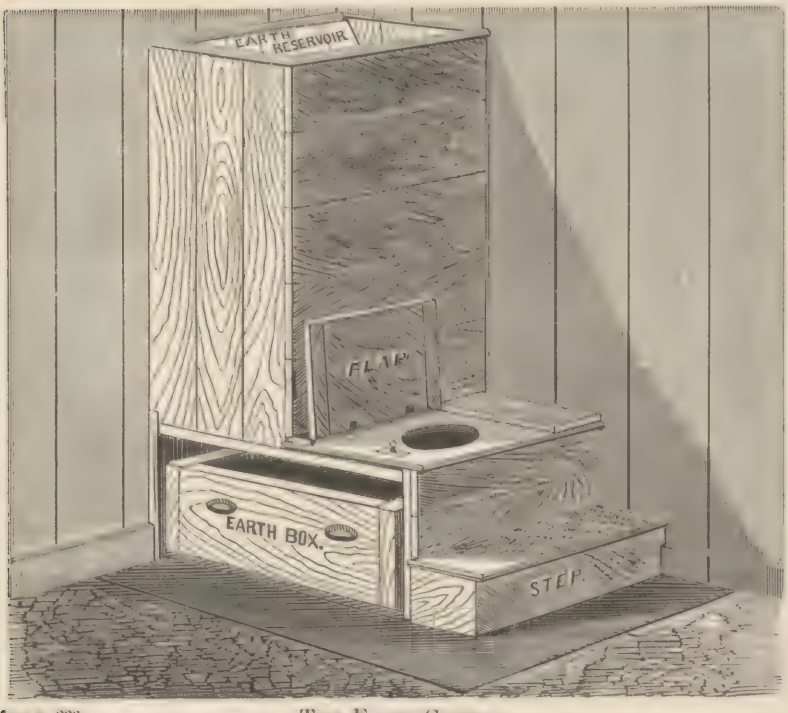
It will be perceived that this latter plan of using the sulphur may be adapted to fumigating closets, carriages, passages, and, indeed, to the vacated chambers of the sick; the only precautions to be borne in mind being to take care that the quantity of sulphur or heat of the live embers be not too considerable, and that the wickerwork is of sufficient height and capacity to prevent the articles fumigated from being burnt in the operation.

With regard to disinfecting the clothing, articles of dress, etc., these should be lightly sponged over or sprinkled with water containing a little *well mingled* milk of sulphur, in the proportion of a teaspoonful of sulphur to each pint of water. The articles should be then ironed by means of a flatiron heated to a sufficient temperature to volatilize the sulphur, but not to burn the clothing. Of course repetitions of this process will be required, according to the extent and duration of the infection.

Finally, we may mention that where none of these articles can conveniently be had, nature has provided three excellent disinfectants, which are always and everywhere at hand, and which are cheap enough to be within the reach of the very poorest. They are fresh *wood charcoal*, *quicklime*, and *fresh earth*.

In the last mentioned substance nature has provided in unlimited quantities, and within the reach of the poorest, one of the *very best* of disinfectants, and we call special attention therefore to the value of





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THE EARTH-CLOSET.

THE EARTH-CLOSET.

From the most ancient times it has been customary to cover dead bodies and offensive matter with earth, but only within a few years past has it been clearly recognized that this not only conceals them, but renders them innoxious to the health, and deprives them of odor. We now know that a proper quantity of ordinary earth—not sand or gravel, but loam—dried and sifted, will, when mingled with any foul substance, such as the passages of men or animals, entirely correct their odor, and remove their poisonous qualities.

This fact can be utilized in the arrangement of privies, and the disinfection of sinks and wells. If each stool be immediately covered with about a pint of fine dry earth, all disagreeable smell is at once destroyed, and so completely that it may be left in one's sleeping apartment for days without annoyance. In a closet used by a number of persons, a box of this sifted earth should be kept near the seat, with a scoop, so that each can, after using the closet, throw a scoop of earth upon the dejection. When the vault is full, the contents can be removed without causing any disagreeable stench.

The dry earth-closet is especially valuable in the chambers of invalids, and in those houses which have no water-closets in them. It is far preferable, both for comfort and safety, to any other commode invented. The following simple and cheap plan of constructing one is quoted from a late pamphlet on the subject:—

A board box, of convenient size, not less than

eighteen inches deep, may be fitted with a movable or hinged cover, with an ordinary finished hole. Unless the box is water-tight, its joints should be filled with putty, white-lead, tar, or pitch. Three inches of dry earth should be spread upon the bottom. At its side there should stand a box of sifted dry earth or coal-ashes, with a small tin scoop or cup. After each use of the closet, enough earth should be thrown into the box to simply cover the feces. A pint of earth is ample for the purpose. When this box is filled, its contents may be removed with a shovel and corn-basket, and it may be kept in the bedroom with as little offence as the stove or chest of drawers.

Suitable earth for the purpose can be obtained in any quantity by collecting the dust in the road when, for some time, the weather has been dry.

GENERAL PRECAUTIONS.

The attendants on the sick with any communicable or any disagreeable disease should place about the room lumps of charcoal; cellars, cesspools, and outhouses should be freely sprinkled with quicklime; and foul matters should be covered with fresh earth. Such precautions will greatly lessen the danger of the disease extending.

When there is no sickness in a house, it is always well to throw some quicklime in the passages and cellars, and to purify rigidly and frequently every close and foul place about with this or some of the other disinfectants we have mentioned. We urge this

precaution with utmost earnestness, as we feel convinced that by the constant and universal observance of it a vast amount of illness and a large number of deaths could be prevented.

It is rather by these general means, than by individual protection, that epidemics must be prevented. The science of a century or two ago was absorbed in the discovery of some specific which would shield the individual from contagion; the science of to-day, less selfish, wider in its philanthropy, and with juster views of man's duty, rather searches for and recommends the means which will prove availing to guard the community from these misfortunes.

IV. Special Contagious Diseases.

THE PREVENTION OF SCARLET FEVER.

There is no one of the maladies usually called "children's diseases" which is more fatal, which annually carries off more persons, which leaves more deplorable after-effects, and which is attended with more suffering, than scarlet fever. It is of the utmost importance, therefore, that those exposed to it should be made acquainted with the best means of avoiding its contagion, that those who have the care of cases should learn the precautions requisite to prevent its spread, and that convalescing patients should know how soon after the disease they can with safety associate with other people.

The disease is extremely contagious, none, pro-

bably, more so. The reason why it is called a disease of children, is, that it is so prevalent and its contagion so certain, that most persons who can contract it under any circumstances, do so in their childhood.

A person who has never had it should avoid as much as is consistent with duty any exposure to it. When necessarily brought in contact with those suffering from it, it is well to subdue all alarm and anxiety about contracting it, to keep the mind cheerful, to obtain a full amount of sleep, to change the clothing frequently, to eat as much as the appetite demands, and to observe scrupulous cleanliness of the whole person.

BY DRUGS.

Several drugs have been lauded from time to time as preventives of scarlet fever. The most highly esteemed for a long while was belladonna. It was asserted that when taken in small doses—two or three drops of the tincture two or three times a day—it acted as a complete safeguard. The discussion as to the truth of this has occupied many volumes in medical literature, statistics on the one side having been met with equally convincing ones on the other. For ourselves, we frankly confess that we have no faith whatever in this pretended virtue of belladonna, and consider that the evidence is altogether against its efficiency.

Quinine, the familiar principle of Peruvian bark, has found friends who maintain that it possesses similar powers. Inasmuch as it is an excellent tonic, it may

well brace up the system to withstand the attacks of contagion, but probably it exerts no such specific influence in the disease under consideration as it does in fever and ague.

A more potent preventive, we believe, has been found in the chemical drugs known as "bisulphites" of magnesia or soda. Several English physicians have reported that, administered in doses of a scruple three times a day, they either prevent the disease altogether or materially diminish its violence. We have given them ourselves in a number of cases with similar results, which we attribute to their power of neutralizing contagion. Unfortunately, they have an unpleasant sulphurous taste, which makes them repulsive to many, and must limit their use. This can, to a degree, be concealed by a judicious amount of some flavoring material, as in the following receipt:—

Take of—
Bisulphite of magnesia, five drachms,
Essence of peppermint, a teaspoonful,
Water, a tumblerful. Mix.
Take a tablespoonful, in water, three times a day.

Very recently, that familiar substance, *tar*, has been strongly recommended as a preventive not only of scarlet fever, but also of smallpox and typhus fever. This belief is not new. There was a work published in 1774, under the title of "Siris," by Bishop Berkeley, on the use of tar-water in arresting the progress of an epidemic of smallpox that occurred in his lordship's diocese.

Within a year, Dr. John Wetherfield, of London, has tried this preventive in a number of instances with marked success. He has no intention, of course, of advocating the use of tar-water in opposition to vaccination, which is without doubt the best antidote to smallpox; but he considers tar to be useful in preventing the spread of scarlatina and typhus. He administers it in the form of pills, made by adding powdered charcoal with mucilage to the tar—the finest Stockholm variety being the best for the purpose.

The use of this, though not intended as a remedy after the disease has been contracted, has, in Dr. Wetherfield's experience, when regularly taken, prevented the spread of typhus fever in families where one or two members have been attacked before the tar was tried. After the pills were fairly in use, no other person, however much exposed to infection, has taken the disease. Subjoined are a few scarlet fever cases out of the many in which the plan is said to have been successfully tried. In no instance were the children or other members of the families sent away out of the infected houses:—

The family of Mr. P——, twelve children and servants. One only attacked. The remainder took the pills very regularly, and escaped.

Mrs. P——, a widow, with two children, all sleeping in the same bed. Only one attacked.

Dr. P——, eleven in family. One child had died before the preventive was tried, and two others were suffering under the disease when it was commenced. No other was attacked; but the tar was taken by all regularly.

Sweet spirits of nitre, in doses of twenty drops to a teaspoonful twice a day, is also useful as a preventive remedy.

The precautions to prevent its spreading are peculiarly valuable in public institutions, schools, board-

ing-houses, and large families. They should be familiar to all, and rigidly carried out.

BY SANITARY PRECAUTIONS.

A sufferer from scarlet fever for a period of about a month from the beginning of the disease is continually throwing off from his body a poison which has the power of conveying the disease to others. The poison is chiefly contained in the scales which are thrown off from the skin, but is also in the discharges from the throat and nose, and from the bowels and kidneys.

Taking these facts as the basis of our precautionary measures, we must adopt the most efficient means to limit and destroy the poisonous emanations. The sufferer from the disease should be placed in a room as remote as possible from other inhabited rooms, and preferably in the upper part of the house. The room should have an open fireplace, in which a fire should be kept burning night and day. Ventilation should further be secured by a carefully regulated opening of the windows.

The chamber should be cleared of all needless articles of dress, carpets, curtains, draperies, etc., as they absorb and retain the poison. A nurse should be chosen who has already had one attack, as it rarely occurs twice in the same individual. She should have the least possible communication with the other inmates of the house, and should wear a glazed cotton dress, which can readily be washed or disinfected.

As all the discharges from the patient are poison-

ous, they should at once be disinfected or destroyed. In place of pocket-handkerchiefs, bits of clean rag should be used to wipe the mouth and nose, and when once used should be immediately burned. Discharges from the bowels or kidneys should be received in a vessel containing carbolic acid, or some other powerful disinfectant. All glasses, cups, or other utensils used by the patient should be carefully cleaned before being used by others. The nurse should frequently wash her hands with carbolic acid soap. The patient's bed and body linen should be immersed immediately on its removal in boiling water, and then in water containing carbolic acid, and the laundress should be charged not to wash it with the other clothes.

Wherever the slops from the sick-room are thrown, there should be a liberal down-pouring of carbolic acid, dry earth, or some other disinfectant. Care should be taken that there is no leakage from the drains, or sewer gas escaping in the house.

As soon as the skin begins to come off in small scales, the whole body should be thoroughly rubbed twice a day with olive oil; and a warm bath should be taken every other day. A little camphor may be added to the oil if agreeable.

When the disease is over, the bedding and clothing of the patient and his attendants, the floors, the walls, and the ceiling of his room, the surface of the furniture, and the interior of cupboards, drawers, and closets, must be thoroughly cleansed and disinfected. If the walls are papered, the paper should be removed and burnt, the ceiling whitewashed, and the floor scrubbed

with soap and carbolic acid. The room should then be left for a time unoccupied, with the windows open.

These precautions may seem tediously minute and excessive, but they are all necessary. So permanent and virulent is the poison, that an instance is related where a girl picked out of a drawer and tied round her neck a silk band that a year before had been worn by a child with scarlet fever. In a few days the girl was seized with the disease, having undoubtedly contracted it from the ribbon. This illustrates how subtle is the poison.

TO AVOID SMALLPOX.

If the science of medicine were called upon to substantiate its claims to the respect and thanks of mankind, it has but to point to the wonderful and beneficent discovery of *vaccination*. A century ago there was not a disease more dreaded, and with greater reason, than smallpox. The mortality from it was frightful; and the few who recovered bore the unsightly traces of their terrible illness to the grave.

This is all changed now. We can positively assert that if the public choose, there need be *no more* cases of smallpox—it may become an unknown and obsolete disease. This is to be effected by the universal, early, and obligatory resort to *vaccination* and *revaccination*. The protection which this little operation, so well known that we need not explain it, affords, is complete.

It should be performed for the first time when the

infant is but a few months old, and repeated at least once, about the age of ten or twelve.

A lighter form of the disease, known as varioloid, may be contracted after vaccination, and therefore *revaccination* is of essential importance.

VACCINATION.

There is no fact better established in the history of science than the protective power of vaccination; and there is no disease more loathsome and repulsive than smallpox. Yet, with the full knowledge of these facts, persons are so negligent, or so blind to their own safety and that of their children, that they in repeated instances overlook this simple duty. It should, therefore, be placed within the power of every one to procure vaccine matter and to use it upon themselves. This, we are happy to say, has been done in at least one of the States—West Virginia—by the appointment of a State Vaccine Agent, whose duty it is to supply to every citizen of the State vaccine matter when requested, with directions for its use. We have before us the circular of Dr. John C. Hupp, the State Vaccine Agent, and we cannot do better than to imitate his directions:—

HOW TO PREPARE THE PATIENT.

Make five or six parallel scratches with the point of a sewing-needle or a lancet at the point chosen for introducing the vaccine matter (which as a rule is about

half-way between the elbow and the shoulder, on the outer side of the left arm), then cross them at right angles with similar scratches. The surface should present a slight blush with a very few specks of blood. Do not apply the matter until the bleeding has ceased, nor until all blood is carefully wiped from the scratched surface, as otherwise the vaccine matter may be washed away.

HOW TO PREPARE THE VACCINE MATTER.

Scrape a small portion of the scab with a clean knife, on the bottom of a china cup or tumbler, and mix it into a thin paste with a little pure *cool* water.

HOW TO APPLY THE VIRUS.

Stretch the skin gently where the scratches have been made, so as to open them, and then take one drop of the virus, prepared as above, and smear it over the part. Allow it to dry, being careful that it is not rubbed off by the clothing. This completes the operation.

It should begin to inflame about the sixth or seventh day, and about the sixteenth the scale is ready to fall off. This it should be allowed to do, and *never* be torn off. When removed, dry it carefully in a moderate warmth, and place it between two thin layers of wax about the size of a dime, and press them around it. This preserves it from the air, and it can be used on future occasions.

PREJUDICE AGAINST VACCINATION.

A foolish and dangerous prejudice possesses some people on the subject of vaccination. They fancy diseases are conveyed by the vaccine matter, and every illness that the infant has for a year after the operation is, if possible, attributed to it. This is folly of the worst description. There are no diseases propagated by vaccine matter; the operation never leaves any serious consequences; and the very few instances which may be quoted to the contrary, are nearly always to be explained by other causes. For ourselves, we believe the laws should heavily fine any one who neglects the discharge of this important duty to the public as well as himself.

REVACCINATION

Cannot be too strongly urged. Some people think that if vaccinated in infancy, this will protect them all their lives. *This is not so.* Many examples are on record where severe attacks of smallpox have appeared in such persons. The question is often asked: "How often should one be vaccinated?" We reply, whenever smallpox is in the neighborhood, and, at any rate, not less frequently than once in ten years. The precaution is so simple and so important, that its neglect is inexcusable.

When it does not "take," it may be owing to a loss of strength in the scab, or carelessness on applying it, dangers which should carefully be guarded against.

TO PREVENT TYPHUS AND TYPHOID FEVERS.

These diseases, which for a long time were supposed to be forms of the same, probably arise from different cause, and are produced by different poison. This poison, in the case of the former, strange to say, is man himself! That healthy people can evolve a poison fatal to their kind, is indeed a strange fact, yet one we cannot doubt. It is called the "crowd poison," for it is most virulent and powerful where many people are crowded together in insufficient space. Their breath and the emanations from their bodies cause a foul air which acts poisonously upon the system, and produces the diseases we have mentioned.

TYPHUS FEVER

Is the scientific name for what is otherwise called jail fever, ship fever, famine fever, spotted fever, and camp fever, all originating where dirty, half-fed, negligent people are huddled together. But it does not confine its ravages to them. On the contrary, it is contagious in the highest degree, and nurses, physicians, visitors, and neighbors, no matter how cleanly and well fed, may fall victims to it. Judges sitting on the bench have caught it from the criminals brought before them; benevolent Christians, visiting the poor, have fallen sacrifices to their sense of duty.

Its outbreak can be prevented with certainty by constant attention to food, ventilation, and cleanliness. A century ago there was hardly a common jail in

Europe where it did not prevail. Owing to the unselfish labors of Howard, and other philanthropists, now hardly any of them are afflicted by it except under occasional circumstances.

The contagion can be prevented by frequently airing the bedding and clothing, taking a sufficient quantity of good food, observing personal cleanliness, avoiding ill-ventilated apartments, and not crowding many persons into small space.

When it has once broken out, these precautions will not suffice. The disease may be carried, like measles, scarlet fever, and smallpox, by persons who are not themselves affected. Neither sex escapes, and no age except the very old and the very young. Those worn out with over-exertion are more disposed to it than the vigorous, but even these do not escape.

As a person who has once had the disease is not liable to a second attack, such a person should be chosen for a nurse. The patient should be separated from others, in an upper well-ventilated room, the discharges received into vessels containing some powerful disinfectant, such as chloride of zinc or carbolic acid, the soiled linen burned or soaked in water containing carbolic acid, the patient not allowed to associate with others until entirely well, and the room thoroughly purified after he has left it.

The famous "plagues," which, from time to time, ravaged Europe during the Middle Ages, were, for the most part, forms of typhus fever. In the year 1665, London lost 65,000 souls, about one-third of its inha-

bitants, by such a scourge. Daniel De Foe has left a most thrilling account of the terror it inspired.

Another writer, equally famous, the Italian Bocaccio, has described in equally forcible language the fearful pestilence, of a similar nature, which, in his day, decimated Florence.

As medical art could do little to heal those already sick, great attention was paid to the discovery of some specific which would prevent one from taking the disease. Many such were devised by unscrupulous charlatans, and loudly vaunted for purposes of sale, but we are sorry to say, that, except by removing the fear of the disease, none of them really possessed any efficacy.

One of the most famous, and perhaps the only one which has survived to this day, has the singular name, "the vinegar of the four robbers" (*vinaigre des quatre voleurs*). The story was that during one of the plagues of Marseilles, when half the population had fled or had died, four robbers accumulated a vast booty by plundering the dead and dying, and breaking into infected houses where none durst follow them. At last, one of them was arrested, and disclosed the means by which they secured such immunity from the pestilence. The recipe was made public property. It is composed as follows:—

Thieves' Vinegar.

Take of—

Rosemary and sage, of each four ounces.
Lavender and rue, of each two ounces.
Camphor and garlic, of each one ounce.
Wine vinegar, one gallon.

But whether it is that it is good for thieves only, or whether those ingredients have lost their virtue, certainly he who reposes on its protective power nowadays, will be likely to be disappointed.

In fact, as before stated, there is absolutely no known specific to escape the contagion of the disease.

TYPHOID FEVER

Is far more common nowadays than typhus. It is more prevalent in winter than in summer, and in country places than in cities; the middle-aged and youth are the most subject to its attack. It is much less contagious than typhus fever, and in hospital wards it is not thought necessary to separate those sick with it from the other patients. Nevertheless, it is better in schools and public institutions always to place these cases in separate rooms, and observe the same precautions in their management as in typhus.

Many instances are observed where a number of scholars in a school, or several members of the same family, and their nurses and attendants, sicken with it one after another. When this occurs, it must not be supposed that they have caught it from each other. They have all been exposed to the same noxious poison, and this, and not contagion, is the explanation.

The causes of such a visitation can generally be discovered. Sometimes it is a long exposure to bad air from want of ventilation; sometimes the air from a sewer or a privy-well entering the house; sometimes the floor and joists of the ground floor will be found

decaying and emitting a foul odor; stagnant pools of waste water may be close by; or a well in the cellar may prove to be in bad order. All such defects must be assiduously remedied, before exemption can be hoped for.

Curtains, thick carpets, and heavy hangings gradually absorb the exhalations of residents in rooms in winter, and become sources of the disease. They should be frequently beaten, brushed, and aired, and the sunlight allowed to fall upon them. The neglect of these rules in winter is why the disease is more prevalent in the winter than the summer season.

A not unfrequent cause of typhoid fever has been ascertained within the last few years, and should be generally known. It is the use of *cast-iron stoves* for heating purposes. Experiments show that they throw off, when heated, a gas which is detrimental to the health, and the direct producer of typhoid fever. They should never be used in schools and lyceums, in public assemblages, nor even in private families.

The Massachusetts Board of Health has lately given particular care to the determination of the cause of typhoid fever, and the results of its investigations deserve to be generally known. In all instances their inquiries led to the conclusion that the decomposition of organized, especially vegetable, matter was the main cause of the disease. Sometimes it was the drinking water made foul by human excrement, sink drains, or soiled clothing; or the air vitiated by the emanations of drains, decaying vegetables or fish, or old timber, or by pig-sties, drained ponds, stagnant water, or accu-

mulations of filth. These same researches render it highly probable that a rich and fertile soil in which decomposable substances are retained near the surface by any cause, whether a clay subsoil, or a ledge of rock, or a protracted drought, is a soil favorable to the production of this disease.

This suggests the importance of choosing a locality for a house where there is a sandy or gravelly subsoil, or if that cannot be had, to have the vicinity of the house thoroughly tile-drained, the cellar kept scrupulously clean, and its walls thoroughly cemented. The sleeping-rooms should be in the second or third floor, and no part of the house should rest directly upon the ground, without cellarage. The privy should be frequently cleaned, and, between times, be disinfected by the free use of dry earth, as we have before described, or by pouring down carbolic acid. When there is a water-closet in the house, it should be carefully watched, lest sewer gas escape.

THE PREVENTION OF SWAMP FEVERS.

Chills and fever, fever and ague, or intermittent fever, as the same disease is variously termed, is exceedingly common in the low and swampy parts of the Southern and Western States, and in the autumn occurs in similar localities all over our country. It is, like typhoid fever, apparently caused by some exhalation given out by decaying vegetable matter, and is most common where large quantities of such substances are exposed to the sun. As this is especially

the case in swamps and marshy lands, the exhalation which causes the disease is called the "swamp poison," or "marsh miasm."

It gives rise not only to the disease we have mentioned, but to congestive chills, break-bone fever, remittent fever, and that complaint common in Louisiana, called the dengue. All sexes and ages are liable to it, and though strangers are more readily affected, no amount of acclimatization protects from its effects. The dangerous Campagna fever of Rome, the Palestine fever which annually carries off so many pilgrims to the Holy Land, the "mountain fever" of the Colorado miners, and most other fevers peculiar to localities, are probably of the same nature. The "shakes" are so universal in some parts of the Mississippi Valley, that they are looked for in the autumn almost with the same confidence as the corn-husking! Their prevention, therefore, is a matter of the highest importance.

TEMPORARY PRECAUTIONS.

We shall first mention the precautions which travellers and temporary visitors in unhealthy districts must observe, and next those which permanent residents should attend to.

A person who visits a region known to be malarious should assume at once the peculiar mode of life of its inhabitants, as regards food and drinks. The water drank should be boiled and cooled, or made into a tea, or prepared in some similar manner. The clothing

should be carefully suited to the temperature of the time of day, every precaution taken not to become chilled, and the evening and night air as much as possible avoided. The windows should be closed at night, and an open fire be lighted in the evening. It is a well-established fact that fire destroys the swamp poison, and when, as in camping out, persons lie all night in the open air, a large fire, well kept up, is a most efficient means of protection. A dwelling should be sought on as high and as dry a situation as practicable. The sleeping-room should be in the upper story of the house. Caution should be exercised not to get wet or damp from dew or rain, and all excesses should be scrupulously shunned. The use of vegetables and milk should be limited, and bathing in ponds or rivers, especially after sundown, is dangerous.

SPECIFIC PREVENTIVES.

As *specific preventives* to fever and ague, there have been recommended tobacco and quinine. An extended discussion of the merits of the former in the *Medical and Surgical Reporter* of Philadelphia, a year or two back, resulted in proving that the popular idea that the employment of this narcotic is an effectual preventive, is quite erroneous. Whatever other virtues it may have, it has not this.

The same cannot be said of quinine. This invaluable preparation from Peruvian bark should be carried by all those who temporarily visit a fever and ague district. It may be put into the form of pills, three

grains each, one of which, taken before breakfast, will prove an admirable safeguard; or in the form of "bitters," which is a more popular though not so unobjectionable a method of administering it. The numerous bitters advertised for this purpose by patent medicine venders are *not* to be used, as they frequently contain no preparation of Peruvian bark at all; but a good, efficient, home-made bitter should be preferred, such, for example, as can be made from either of the following receipts, one containing alcohol and one without it:—

Take of—
Gentian root, one ounce.
Wild-cherry bark, half an ounce.
Peruvian bark, one ounce.
Boiling water, one quart.
Simmer fifteen minutes and strain. Dose, a wineglassful.

Take of—
Sherry wine, one quart.
Peruvian bark, two ounces.
Ginger, bruised, quarter ounce.
Dose, a tablespoonful.

PERMANENT PREVENTIVES.

Some people are afraid to take quinine, and some may not have it convenient. We recommend to such, as a very excellent, convenient, and cheap preventive, a strong tea of the calamus root, a wineglassful every morning before breakfast.

Permanent Residents must, in addition to such of the above counsels as are applicable to them, observe

some other rules. Their dwellings should be built on as high and dry grounds as possible, the cellar well aired and drained, the rooms fitted for large open fires, and the site chosen should be to the windward of any large marshes (with reference to the prevailing winds).

ADVANTAGE OF TREES.

Trees and thick bushes should be left, or if not present, be planted, between the house and the adjacent low grounds, as they very materially intercept the swamp poison, and have an attraction for it.

Among the Romans, the advantage of such barriers has long been recognized. Trees were planted in rows and masses to guard against the diffusion of malaria. The practice was enforced by law, and recorded in the Roman tablets. This law, which was reported by Cicero—"Lucos in agris habinto"—evidently had reference much more to the advantage in question than for the purposes for which trees are usually planted. In order to insure their safety, such collections of trees were placed under the protection of some divinity, or under the responsibility of the Roman consuls.

Bapt. Donus, in his work "On the Means insuring Salubrity to the Soil of the Roman States," recommends the planting of pine and other trees between Rome and the Pontine Marshes, to intercept the miasmata wafted from there by the southwest winds. At Velletri, as also at Campo-Salino, the destruction of belts of woods was followed by the prevalence of fever.

Dr. Lewis, in his "Medical History of Alabama," says: "Mr. P. E. had negro-quarters situated on the first prairie elevation above the low lands of a small creek, the fourth of a mile from the houses. The belt of low ground frequently overflowed, causing water to remain in holes over its entire breadth, in the subsidence of the stream; but it was well shaded by a dense foliage, the plantation lying on the prairie in the rear of the cabins. In the winter of 1842 and 1843 the trees between the houses and creek were cleared away, and up to that time, some eight or ten years, the negroes living in this quarter had enjoyed uninterrupted health—a case of fever scarcely occurring. During the summer of 1843, the first after the forest had been cleared away, fever prevailed among the negroes with great violence, continuing until frost. The negro-quarters were afterwards removed to the opposite side of the creek, about the same distance from it, but with an intervening growth of timber, and no fever has occurred on the place since."

Indian-corn should not be planted close around or very near the house (say within two hundred yards), as it is unquestionably a promoter of the miasm.

ADVANTAGE OF PLANTS.

On the contrary, the common sunflower (*Helianthus annuus*) has been spoken of, on good authority, as a corrective of the miasmatic poison of low lands. A recent medical journal relates that a swampy tract on the river Schede, in Belgium, was so unhealthy from

this cause that the government proposed to take official steps to remedy it. One of the land-owners in the district, who had suffered from chills annually for three years, commenced raising sunflowers. He planted three or four groups of them forty or fifty yards from his house in various directions. They flourished astonishingly, raising large, heavy flowers. Ever since then he and his family, including laborers and visitors, have been entirely free from the disease. A number of his neighbors have followed his example, and have enjoyed the same immunity; while those who have not raised the sunflowers, suffer as much as formerly. This fact, coming as it does from an authentic source, is well worthy of general dissemination.

Lieutenant Maury believed that a few rows of sunflowers, planted between the Washington Observatory and the marshy banks of the Potomac, had saved the inmates of that establishment from the intermittent fever, to which they had been formerly liable. These experiments have been repeated in Italy. Large plantations of sunflowers have been made upon the alluvial deposits of the Oglio, above its entrance into the lake of Iseo, near Pisogne, and, it is said, with beneficial effects.

Dr. Cartwright ascribes to the *Jussiva grandiflora*, a plant found in great abundance in marshy or swampy places in the Southern States, particularly in certain regions of Louisiana, which present the usual characteristic malarial surfaces, the cause of their exemption from fever. Aquatic plants, and those found in swampy or marshy soils, while growing, exhale a large

quantity of oxygen; but when they have their growth, this action ceases, and those regions become unhealthy.

USE OF PETROLEUM.

Another substance, which acts as a preventive, is petroleum. It has been observed, especially in the East Indies, that, in extremely unhealthy districts, where the fatality from congestive chills is notorious, and where labor in the open air is dangerous even to the natives, the government laborers, employed in the petroleum works are absolutely exempt from any signs of the disease. The probable reason of this is that petroleum contains carbolic acid, the best and most potent of all disinfectants. The fact may be utilized by those exposed to the complaint. They should keep petroleum or the acid in their houses, disinfect their sinks, etc., with it, and place saucers of it in the rooms.

USE OF CIDER.

Finally, we may add the statement of a New England physician, Dr. Warner, who has spent many years in localities exposed to fever and ague. He asserts that he has observed that persons accustomed to drink *cider* freely, are not so liable as others to diseases produced by swamp-poison. We may suppose this owing to the "malic acid" present in the juice of the apple, which acts as a preventive.

TO PREVENT CHOLERA.

Fortunately, for some years past, we have been spared those terrible visitations of this dreadful disease which, at several periods within the memory of many, have well-nigh desolated our cities. But we cannot rely upon this immunity in the future, and it is well, therefore, for all to be acquainted with the rules for personal government in the event of such another epidemic. We give those united upon by various distinguished physicians of experience in this malady, and which have proven efficacious in repeated instances.

PERSONAL PRECAUTIONS.

Since the disease is communicable, and there is consequently more danger in a house and in a city where it exists, those who can journey elsewhere should do so. They should start early, go entirely out of the reach of the disease, and stay away until it has completely disappeared. Those localities are most free from the disease which have a cool, dry atmosphere; hence the mountains rather than the seashore should be preferred.

Those whose duty or necessity obliges them to remain, should, beyond all else, refrain from using a strange or a common water-closet. The poison of cholera is conveyed chiefly by the passages of patients, and soon infects a whole privy. Portable earth-closets should be used, and the utmost attention to their clean-

liness be given. The common closets should be frequently disinfected by pouring down them carbolic acid.

The diet should be of articles easy of digestion, and whatever tends to diarrhœa must be avoided. Complete and sudden change in the mode of life is not desirable. If any spirituous liquor whatever is taken, it should be only small quantities of good red wine with the meals. All excesses, either in food or drink, should be shunned. The recommendation sometimes made, to use brandy or other alcoholic beverage as a preventive, is pernicious and dangerous counsel; all such drinks have an injurious, and not a protective power, and should be wholly shunned.

There need not be an entire abstinence from fruit and vegetables; but the indulgence in these articles should be limited, and confined to such as are ripe and fresh. Very serious mischief results from eating fruits unripe or partially decayed, and wilted or stale vegetables; but not from the consumption of those which are in good condition. Fruit should be taken in the morning, and never in the evening. So familiar is this precept to residents of tropical climates, that the Spaniards have a proverb that the orange is "gold in the morning, silver at noon, but lead at night."

Cucumbers, sourkrout, pickles, cabbage, and in general all foods which from experience have been found to disturb the bowels, should be taken with the greatest caution, or altogether shunned. Meat should be well done, and from healthy animals.

It is important that the mind be free from anxiety

and fear. A marked dread of the disease, and constant timidity about contracting it, predispose the system to its attack, and leave a diminished power of resistance.

Severe exertion, prolonged vigils, and fatigue should be avoided, inasmuch as they lower the ability of the system to throw off the poison which floats in the atmosphere. Exposure to a hot sun or to chilly night air has a similar effect.

Personal cleanliness is essential. A bath should be taken daily, and all the clothing changed weekly. A flannel undershirt should be worn, sufficiently long to cover and protect the bowels.

PREVENTIVE TREATMENT.

The observation of many thousand cases of cholera proves that in the vast majority of instances it is preceded by a looseness of the bowels, with little or no griping, the discharges not very numerous, and increasing in fluidity, the duration varying from one to ten days. This painless diarrhœa, known as the *cholerine*, is usually not heeded, and the fully developed disease is allowed to invade the system ere any remedial steps are taken. This is too often a fatal mistake. The proposition has been laid down by an eminent French authority (Jules Guérin):—

"That it is always possible to arrest the development of the fatal stage of cholera by attacking the disease in its curable one."

This curable stage is that of the cholerine. It

should always be attended to without delay. The remedies are *not* brandy and opium, too frequently offered, and which only serve to give a delusive and temporary relief, under cover of which the main disease steadily advances; but perfect rest in bed, a careful and limited diet, and the administration of *laxatives*, in order that nature may be aided in discharging from the system the poisonous material which has obtained lodgement there. The best of all laxatives for this purpose is *castor oil*, a tablespoonful of which should be taken morning and evening until the character of the discharge is changed.

After this has been effected, which should be in thirty-six hours if not less, much benefit will be derived by using a dilute mineral acid. This may be taken by mingling a teaspoonful of *aromatic sulphuric acid* in a pint of water, of which a small tumblerful should be taken every hour or two. If there is vomiting, it should be taken immediately after the act. Cool water may be taken freely.

The passages from the bowels should be received into a vessel containing a solution of carbolic acid, and at once removed from the room. The patient should not go to the water-closet.

Some hot coffee or some peppermint tea may be taken, but the external application of heat does no good, and may do harm.

SPECIFIC PREVENTIVES.

As specific preventives, many preparations have been lauded. In Russia, persons took a raw egg and

a half teaspoonful of powdered charcoal every morning, with alleged success. There are also some "Russian cholera drops" much celebrated. They would doubtless render good service in some instances where there is disturbance of the bowels present, and we give the recipe:—

Take of—
Ethereal tincture of valerian, two drachms.
Wine of ipecac, one drachm.
Laudanum, twenty drops.
Oil of peppermint, five drops.
Give 25 drops every hour or two.

A "cholera pill" which has been distributed by tens of thousands in the towns and villages of India, where cholera is almost constantly present, and which has given very satisfactory results, is composed as follows:—

Take of—
Powdered opium, ten grains.
Black pepper, twenty grains.
Assafœtida, thirty grains.
Make into ten pills.

After indigestible food or other matter in the bowels has been removed by an emetic or a dose of castor oil, *one* of these pills should be taken. If the looseness continues, another should be swallowed after the lapse of three or four hours.

We must here warn our readers against a blind reliance in the advertised "cholera medicines." They are generally useless, and often dangerous; and when they do give relief, the result too often proves that it is but

a transient and fallacious ease, under which the real malady is gathering strength and insuring a victory.

Cholera is essentially a *preventable* disease. But, to prevent it completely, families, cities, and the commonwealth must unite in their efforts. What the duties of public bodies are, it is unnecessary to explain. But we will add, what every household should look to,

GENERAL PREVENTIVE MEASURES.

It should be generally known that the dangers which have to be guarded against as favoring the spread of cholera contagion are particularly two. First, and above all, there is the danger of water supplies which are in even the slightest degree tainted by house refuse or other like kinds of filth; as where there is outflow, leakage, or filtration, from sewers, house-drains, privies, cesspools, foul ditches, or the like, into streams, springs, wells, or reservoirs, from which the supply of water is drawn, or into the soil in which the wells are situated: a danger which may exist on a small scale at the pump or well of a private house; or on a large scale, in the source of supply of public water works. And, secondly, there is the danger of breathing air which is foul with effluvia from the same sorts of impurity. Information as to the high degree in which these two dangers affect the public health in ordinary times, and as to the special importance which attaches to them at times when any diarrhœal infection is likely to be introduced, has now for so many years been before the public, that the improved systems of

refuse removal and water supply, by which the dangers are permanently obviated for large populations, ought long ago to have come into universal use.

So far, however, as this wiser course has not been adopted, temporary security must, as far as practicable, be sought in measures of a palliative kind. 1st. Immediate and searching examination of sources of water supply should be made in all cases where the source is in any degree open to the suspicion of impurity; and the water both from private and public sources should be examined. Where pollution is discovered, everything practicable should be done to prevent the pollution from continuing, or, if this object cannot be attained, to prevent the water from being drunk. 2d. Simultaneously, there should be immediate thorough removal of every sort of house refuse and other filth which has accumulated in neglected places; future accumulations of the same sort should be prevented; attention should be given to all defects of house drains and sinks through which offensive smells are let into houses; thorough washing and whitewashing of uncleanly premises, especially of such as are densely occupied, should be practised again and again. 3d. Disinfection should be very freely and very frequently employed in and round about houses, wherever there are receptacles or conduits of filth, wherever there is filth-sodden porous earth, wherever anything else, in or under or about the house, tends to make the atmosphere foul. In the absence of permanent safeguards, no approach to security can be got without incessant cleansings and disinfections, or without extreme and

constant vigilance against every possible contamination of drinking water.

TO PREVENT HYDROPHOBIA.

This is one of the most terrible diseases which the physician ever witnesses. The agony is horrible to contemplate, and the result hopelessly fatal. But it *can be prevented*, and every person should understand how to do this, and be ready to apply the means.

We must first say a few words of the nature of the disease. Usually it is contracted from a mad dog, but cats and other animals occasionally communicate it. The poison which propagates hydrophobia exists in the saliva of the rabid animal, and merely besmears the tooth. It produces no irritation and no immediate effect, but, like the virus of the smallpox, remains a certain period in the blood before the system becomes affected. The period in the production of canine madness varies, but it is commonly about six weeks, and then, before constitutional disease is developed, a slight irritation occurs in the scar, and the wounded member becomes violently inflamed.

When these phenomena take place there is no hope, and the constitutional symptoms follow immediately. However, if, during the long period which precedes the symptoms mentioned above, the proper remedies be employed, and especially soon after the bite the prevention of the disease is almost certain.

A deep wound inflicted by the bite, it is asserted, is less likely to be followed by hydrophobia than is a

slight scratch abrading the skin, since the copious effusion of blood washes away the poison.

PREVENTIVE TREATMENT.

The preventive treatment is as follows: Let the wound be instantly washed again and again with soap and water, and then apply a cylindrical piece of caustic potash cut in the shape of a pencil point, and hold it firmly in the bite for fifteen seconds, without regard to the pain, which will be severe. Caustic potash, in cylindrical pieces, can be obtained of any druggist; but if the accident should happen in the country, remote from the shops, it can be made extempore by pouring boiling water on wood-ashes, straining out the lye, and boiling it down to the consistency of molasses. This substitute may be applied with a smooth stick.

When the wound is a mere scratch, and therefore more dangerous, wipe it over briskly with the caustic potash. Nitric or sulphuric acid, diluted, may also be used; but milder caustics, which do not destroy the surface of the wound, cannot be relied on, although Mr. Youatt recommends nitrate of silver. After the application of the caustic, the wound may be poulticed with bread and milk for two days, and then dressed with simple salve.

Professor Smith, of Baltimore, says that in the course of fifty years' practice, he has had occasion, in many instances, to treat the bites of dogs undoubtedly rabid, and has never known the disease to result, when

the above preventive measures were employed within three days after the bite

V. Diseases not Contagious.

THE PREVENTION OF APOPLEXY AND PALSY.

These diseases are largely confined to those who are well advanced in years. They are so lamentable and so irresistible in their effects, that it is the more imperative for every one to avoid the causes which predispose to them. Paralysis, or palsy, is usually consequent upon a stroke of apoplexy, so we can properly treat of them together.

There is a prevalent opinion that those who are "full-blooded," with a red face, a short thick neck, and a robust habit, are alone liable to apoplexy. This is by no means the case. The thin and pale are quite as much in danger of it. There are in fact two varieties of the disease, one depending upon a plethoric condition of the system, and the other upon a deficiency of good blood.

One of the earlier premonitory warnings of a tendency to this complaint is a "swimming in the head," as it is familiarly termed, in other words,

DIZZINESS OR VERTIGO.

When this is accompanied by a feeling of heat and fulness in the head, a flushed face, an injected eye, and noises in the ears, it indicates that there is too much blood in the brain, and the sufferer should at once

reduce his diet, keep his bowels open with saline mineral waters, and avoid getting overheated. These attacks usually are produced by exertion, or by tight collars or cravats, or some other cause which drives the blood to the head.

Another kind of vertigo is characterized by paleness of the face, a sense of faintness, and sometimes sickness of the stomach; it is sudden and transient, though sometimes leaving after it a headache. This is from a lack of blood in the brain, and requires very different treatment from the other form of attacks. It may also portend an apoplectic stroke, and demands even greater care to prevent bad consequences. It is by no means of trivial moment. It demands entire rest and relaxation, a nourishing diet, gentle regular exercise, and a judicious course of tonic medicines.

Unless these warnings are heeded in time, it may proceed to an actual stroke, the result of which is frequently to incapacitate the sufferer ever after from active participation in the affairs of life.

We do not wish it to be understood, however, that occasional attacks of dizziness are always so portentous as these. Such attacks may be derived from a variety of causes, as, for instance, from heart disease, dyspepsia, loss of blood, and nervous disorders.

After a first attack of apoplexy there remains a strong predisposition to a second and a third, one of which usually proves fatal. The most that can be done is sedulously to guard against the causes which have brought about the first seizure, and improve the general health by any available means.

TO PREVENT INDIGESTION AND DYSPEPSIA.

These extremely frequent complaints arise from such a variety of causes, that we cannot wonder at their extent. Some of the most common are eating too much, eating too little, eating indigestible articles, eating at irregular hours, and eating too rapidly. We have given directions on these points on an earlier page, which will be sufficient to guard our readers.

The crime of gluttony is one happily much less prevalent in this age than in former ones, and in this country than in the higher circles of European States. The arts of the kitchen are with us in their infancy, and the temptation is rare to partake of food in excess. On the other hand, it is almost a national failure to hasten our meals and half masticate our food. These, together with the abuse of alcohol and tobacco, are the prevailing causes of dyspepsia among men in middle life.

The consumption of distilled spirits, at all times objectionable, is particularly harmful in the manner in which it is carried on in this country, which is not at meals, as in Europe, but on an empty stomach, often in the forenoon. An eminent London physician says on this point: "The test I apply to discover whether the amount of alcohol taken is such as to injure the stomach is to inquire whether the patient is accustomed to take a dram in the forenoon. If so, I at once feel sure that the stomach has suffered. I have not yet met with a forenoon tippler, even though he

never got drunk in his life, without a condition of stomach which must infallibly shorten his days."

The use of articles very hot or cold, such as hot tea and coffee, and ice-water in quantities, is sure sooner or later to tell unfavorably upon the digestive organs. It is wiser to take all substances at as near the temperature of the stomach or body itself as may be.

Confirmed sedentary habits lead to indigestion more by the confinement in an impure atmosphere, and by withdrawing the nervous force from the stomach, than in any other manner. When these concomitants are withdrawn, as, for instance, in some bedridden persons, and in the inmates of well-ventilated cells, indigestion is rare. Indeed, there is every reason to believe that, with proper care, persons forced to pursue the most sedentary avocations can remain in perfect health to an advanced age.

Inaction of the body is in fact less likely to impair the nutrition of the body than inaction of the mind. People who have nothing to do always magnify their own ailments, and give themselves so much worriment about their health that they often end in undermining it entirely. Many men first suffer from dyspepsia when, after a number of years spent in accumulating money, they give up business in order to enjoy life.(!) In nine cases out of ten the result is anything but what they anticipated. In the interest of their stomachs, if not of their fellows, we advise them to continue their occupations.

Excessively hard labor should also be avoided, as, when this is performed, especially soon after or before

a meal, it very soon weakens the stomach. Continued nursing in women has the same effect.

Even more deleterious are worry and anxiety about business and domestic affairs. An eminent physician and professor in this country used to state in his lectures that he was obliged in early life to give up the practice of midwifery, for as soon as he was summoned to a case of labor, such was his anxiety about it that he was invariably seized with a violent spell of indigestion.

Disappointment and ill-success are common causes of dyspepsia, avoidable in one sense, not in another. We may not be able to prevent them, but we can at any rate bear them with more fortitude than is often shown. They are very certain to debilitate the system, and always commence by deranging the digestion. There is no tonic equal to success. The prosperous lawyer or merchant will accomplish without the slightest injury more hard work than would serve to break him down body and mind if he was steadily and hopelessly losing money instead of making it. It makes all the difference in the ease with which we swim, whether the current is for us or against us. It is worry, not work, that kills.

Those occupations which are either directly poisonous, or which interfere with the taste for food by vitiating the air, soon lead to dyspepsia, as also do those which force the body into a cramped and uncomfortable posture. Shoemakers and tailors nearly always have digestive trouble of some sort. Needle-women, who bend over their work all day, and laborers in fac-

tories where the air is tainted with bad smells, or where the temperature is constantly high, are also frequent victims.

The vast quantities of patent medicines which every year are swallowed by the public are to blame for a very large percentage of the cases of dyspepsia. The syrups, and bitters, and extracts, vaunted for their nameless cures in the advertising columns of the papers, really cause more illness than they cure. The numerous pills sold under high-sounding names are always without exception purgative, and the frequent use of purgative medicine is one of the very surest roads to a decided case of dyspepsia. The temporary relief which these medicines give is illusory and in the end they only plunge the patient more irretrievably into a confirmed state of invalidism.

TO PREVENT DIARRHŒA AND DYSENTERY.

These and other bowel complaints are more frequent in the hot months than in winter. Hence we are often called upon to believe that their increased frequency during the warm season is owing to the vegetables and fruits consumed at that time. It is quite likely that eating unripe or wilted fruit and vegetables causes disturbances of the stomach and sickness; but it is of a temporary character, and will generally cure itself if no other cause is present.

A total abstinence from fruit and vegetables at such periods would certainly produce far more sickness than even intemperate indulgence in them. In

hot climates and during the hot months the taste naturally prefers an almost exclusively vegetable diet, and one in which fruit holds a conspicuous part. When ripe and fresh, nothing is more wholesome, and the gifts of nature at this season may be indulged in freely, though of course not gluttonously.

A far more frequent cause of diarrhœa and dysentery is a chill. In the hot nights of July and August nothing is more delightful than to divest one's self of clothing at night, and feel the cool and soft air play around the body—and nothing is more dangerous; for a chill may creep upon one insensibly, and lay the foundation of a severe and perhaps fatal illness. Therefore, even in the hottest nights, one should sleep under a sheet or some covering.

A comparatively slight change of temperature affects the system when it is prostrated by a long heated term. As at such times the stomach and bowels are the parts most likely to be attacked, it is prudent to have them always protected by a thin flannel undershirt, or else by an eight inch broad band of flannel passed around the body. This is a very efficient protection, and should not be neglected by those who have a tendency to weakness of the bowels.

During the war, when dysentery was very prevalent in some of the regiments, many of the men adopted with benefit the use of the "spice belt." This is a broad flannel belt of double thickness, containing in the fold coarsely ground ginger, cloves, allspice, and red pepper. The surgeons attributed the protection this gave quite as much to the flannel as to the spices,

but doubtless they too had some effect, and the device grew into deserved esteem.

Bathing the chest and belly every morning with cold water, or with vinegar and water, equal parts, exerts a salutary effect by lessening the sensitiveness of the body to the impression of cold.

Impure water is a frequent cause of obstinate diarrhœas. When it is possible to filter it before drinking, it should be done; if conveniences for this are not at hand, then it should be boiled or heated and allowed to cool before use; and if this too is practically impossible, it is better to mingle with it a few drops of *tincture of ginger*, as this diminishes its tendency to sickness and nausea.

It is hardly necessary to speak of the necessity of avoiding irritating and indigestible food of all kinds, and refraining from immoderate use of ice-water and other beverages in warm weather; as on previous pages we have spoken at length of the rules which should govern us in reference to these things.

TO PREVENT WORMS.

The most familiar worms which infest the human species are the tapeworm, the round worm, and seat worms. These and all other kinds are most probably derived from some external source, and do not perpetuate their species in the body. We know this of the tapeworm. This ugly parasite, often fifteen and twenty feet long, is nearly always derived from eating pork which is insufficiently cooked. The Jews and

Mahommedans, who do not eat the flesh of this animal, are very rarely subject to it. On the contrary, when, as during our late war, it constitutes a very frequent article of diet, often raw or half cooked, tapeworms are numerous.

The flesh of sheep and beef may also, but more rarely, convey the eggs of worms into the stomach. It should, therefore, be always pretty thoroughly cooked. Vegetables which are eaten raw, such as salad, lettuce, radishes, and fruit, should always be carefully washed or wiped, as they, too, sometimes have on their outer surface deposits of eggs.

Cooks and butchers are liable to worms more than others, and should, therefore, be very cautious. They should not hold a knife in the mouth which is used in cutting raw meat, nor should they use it to cut bread, etc. Their hands should always be well washed before being used for other work, and scraps of meat should be gathered up and put aside.

It has been proven by a number of instances that pet dogs, as lapdogs, etc., which are much caressed, convey occasionally parasitic worms to their masters and mistresses. The dog is peculiarly subject to certain varieties of these parasites, and they readily pass from them into the human species.

THE PREVENTION OF SKIN DISEASES.

Skin diseases are of numerous varieties, very common, and often sadly disfiguring. In the interests of good looks as well as good health, they should be pre-

vented, and we can lay down some very practical rules in this respect. Whatever is generally beneficial to the health is also preventive of these diseases; and besides such general directions there are a number of special precautions which should be observed. Whenever a person has actually suffered from them, or has a hereditary tendency to them, he will do well to adopt rigidly these measures.

CLEANLINESS

Must be enforced with more than ordinary care. Not only should the skin be washed frequently, but it should be rubbed thoroughly though not harshly with a towel, and, if inclined to be dry, harsh, and cracked, should be anointed with a small quantity of glycerine or fresh olive oil, well rubbed in. The parts most exposed, the face, hands, and neck, may be dusted with a little rice or starch powder, and should be protected, the hands by gloves, the face by veils or a broad-brimmed hat, when the weather is very hot or very cold. One should not go out-doors immediately after washing the face, unless a little oil or glycerine is rubbed in, as the skin is otherwise inclined to chap.

In bathing, the water should neither be hot nor cold, but only tepid. Any extreme temperature predisposes the skin to eruptions, and leads to a disturbance of the functions. Many persons who have adopted the very good habit of a cold bath every morning are much annoyed in winter by an itching of the body, especially at night. They will find themselves benefited by a

moderation of the temperature of their bath, and by throwing into it a tablespoonful of glycerine, or by sponging the surface occasionally with a strong solution of iodide of potassium.

THE DIET

Requires to be carefully regulated in those liable to skin diseases. It is repeatedly observed that schools and other institutions where the food, though nourishing, is monotonous, are very exposed to epidemics of skin diseases, which will promptly disappear on changing the bill of fare. Whenever there is indigestion, constipation, or any long-continued indisposition of this nature, the system is more open than otherwise to the outbreak of a skin disease, and often the promptest method of curing it when present is to remedy the disorder of the bowels.

Indeed, there are certain articles of food which in some persons invariably give rise to severe and painful eruptions. Lobsters, oysters, and other shellfish never agree with some persons, always causing a breaking out of temporary character. So, again, many persons cannot indulge in beer, wine, or spirits without paying a similar penalty for their pleasure; and a lesser number always suffer if they partake too freely of animal food. These are peculiarities of temperament, which, when once learned by experience, should be respected thereafter.

On the contrary, too low a diet, very often adopted with a view of "cooling the blood," is generally a

mistake, and aggravates the evil which it is attempted to remove, as a tendency to eruptions more frequently depends upon debility than on a plethoric condition of the system.

Many persons are greatly annoyed with a violent itching, without any eruption, coming on every winter and passing off towards spring. In many cases the secret of this is the use of *buckwheat cakes* at this season of the year, that grain producing in many constitutions a very troublesome and obstinate irritation.

CLOTHING,

Especially that next the skin, has much to do with the causation and prevention of skin disease. Some skins are so irritable that they become excited to an unbearable degree by the use of flannel. These should place a garment of thin linen between the flannel and the skin. A remembrance of this little point will often give such persons the greatest cause to be thankful for the suggestion.

Others, again, find a similar irritation from the use of silk, caused chiefly from its electrical action. They should employ a similar precaution.

The *color* of undergarments is not a matter of no importance. On the contrary, persons occasionally owe very troublesome skin diseases to a want of prudence in this regard. Corolline and similar dyes belonging to the aniline colors, and some greens, exert a poisonous action on the skins of most, and when stockings and gloves are dyed with them, the parts in

contact suffer from obstinate eruptions. As a rule, only undyed goods should be chosen for underwear.

OCCUPATIONS.

Some occupations are well known to be liable to certain diseases of the skin. Cooks and firemen, whose faces are exposed to sudden alternations of strong heat and cool air, nearly always have eruptions on their skins; bricklayers and masons have an eruption on the hands brought about from handling lime and mortar; grocers are subject to the "grocer's itch," supposed to be contracted from dealing out raw sugar, which, as we have already mentioned, contains a small insect; washerwomen have a troublesome cracking of the skin of the fingers, brought on by the constant exposure to the lye and strong soaps. Of course, the only method of avoiding such diseases is to avoid the causes which produce them.

TO PREVENT SEA-SICKNESS.

Many a delightful water-excursion is spoiled by the sea-sickness of some of the party. A vast number of means have been suggested for its prevention, most of them worthless. We will give what we believe to be the best.

A person liable to it should go on board some hours after a full meal; he should wear a silk handkerchief or scarf fastened tightly around his body, compressing his stomach; he should keep on deck in the open air,

and moving about; and he should avoid looking over the side of the vessel at the waves, or up at the spars or riggings, or going to the stern or bow of the vessel (where the motion is greatest). He should avoid thinking of the possibility of getting sick, or watching his own symptoms. Sitting on deck near the side of the ship, so that no swinging object interferes with a steady view of the horizon, often produces great relief from the earlier symptoms.

The application of an ice-bag to the spine will prevent the unpleasant symptoms in some persons; while a warm stimulating drink, as a little hot tea or coffee, or ginger tea, will act equally well on others. Spiced food and aromatics, as "deviled biscuits" and cloves, relieve others. But too often no precautions will avail to escape it.

Dr. O. Rapin, of Switzerland, says that he has found that the nausea and vomiting produced by swinging and sea-sickness can be arrested by applying to the pit of the stomach a layer of wadding dipped in collodion. It should extend from the breast-bone to the navel, and be left until it falls off. If the adhesion should be imperfect, the application should be renewed. Several persons, he says, have tried this plan with benefit.

TO PREVENT DISEASES OF THE EYES.

The faculty of sight is so all-important to the usefulness of the individual, and its organ is so marvellously delicate, that every precaution should be observed

to preserve them from premature decay and injury. The rules we give to that effect are drawn from the works of those eminent in that department, who have studied not merely the diseases of the eye, but how those diseases may be avoided.

RULES FOR PRESERVING THE SIGHT.

On awakening in the morning, do not expose the eyes to a sudden and violent light, but keep them half-shut for several minutes.

Do not rub the eyes with the hand in awakening, should they feel irritable, as is often the case. Make use of a wet towel, with which they should be gently wiped.

Bathe the eyes gently every morning and evening in pure water.

In the ordinary apartment in which you work, have a steady, clear, but not dazzling light. Avoid a room which has windows down to the floor. The light should come from above and behind you. It should fall upon your work at an angle of about forty-five degrees, not from in front, but obliquely over the shoulder.

Do not hold your work or a book behind the light, nor turn your back to the window so as to read with more facility. Such a position is very fatiguing to the organ.

Avoid a position which exposes your eyes to the light reflected from a white wall or any polished surface.

Shun as much as possible walking against high

winds, or exposure on dusty roads or in rooms filled with floating particles.

Never read lying down, nor in a railroad car, a street car, or a carriage.

Spare your eyes by using a shade, and a violet or light blue chimney to your lamp or burner.

If you are obliged to work before a bright fire, bathe the eyes frequently in cold water.

Do not attempt to read at dusk nor by an insufficient light in the evening.

When you perceive the eyes are overtaxed, give them rest at once. Sometimes a single instance of neglect leaves behind it a long and even a permanent debility.

Never attempt too much, either by using the eyes for a long-continued period, or by endeavoring to watch very small or distant objects.

BENEFIT OF A SEA-VOYAGE.

When the mischief is done, and when by age or overwork the eyesight is impaired and weakened while yet no actual disease is present, one of the most efficacious means to restore its powers is a *long sea-voyage*. This is well known to naval surgeons. Dr. Roderick MacLaren, in a recent Scotch medical journal, tells of an old gentleman above sixty years of age who made the voyage to Australia in a sailing vessel. When three months out, while reading an old newspaper, he was astonished on putting his hand to his face to rub his eyes, to find that he had no spectacles on, as for

many years before he left home he could not read newspaper type without them. The improvement was permanent.

DANGER OF TIGHT BOOTS.

A singular cause of weak eyes, but an unquestionable one, is *tight boots*. The editor of a leading British medical journal made the following remarks in a late number of his periodical:—

"There is something after all in the notion and belief of our old lady friends that tight boots produce weak eyes. Since the new-fashioned boot made for and worn by ladies has come into use, we have been consulted in various instances, for a weakness of vision, and a stiffness about the ocular apparatus, which we found at first difficulty in accounting for, since we were unable to detect any abnormal condition of the eye to cause this disordered vision, or to trace any constitutional disturbance likely to provoke functional phenomena. A mother, wise in her generation, given to bestowing roses to Harpocrates, the god of silence, asked us if the tight boots worn by her daughter might not produce the distressing symptoms of *asthenopia* complained of. To this we assented, and, upon the tight boots being dispensed with, discovered that the cause of the mischief must have been removed, for the injurious effect upon the eyes ceased."

DANGERS FROM USE OF ALCOHOL AND TOBACCO.

Weakness of the sight, and that affection called "color blindness," in which colors cannot be distinguished apart, often arise from the abuse of alcoholic drinks and the inordinate use of tobacco. Smokers and tipplers are peculiarly subject to them, and the absolute reform of these habits is essential to preserve the eyes. A recent writer on the eye cites twenty cases of these complaints. All of these patients suffered from some affection of the digestive and nervous system. Loss of appetite, constipation, loss of sleep, were common symptoms. Each one of the twenty patients was a strong smoker, and in eleven of these cases a very marked improvement was observed when the use of tobacco was given up.

CHAPTER IX.

THE PREVENTION OF DECREPITUDE.

CONTENTS.

The chemical prevention of old age—General rules for the prolongation of life—The natural progress of old age—The diet of elderly persons—Physical exercise in old age—Preservation of warmth in old age—Mental exercise in old age—How to preserve the eyesight in advanced life—How to preserve the hearing—At what age to retire from business—The prevention of the diseases of the aged—Rejuvenation in old age.

WE have in the foregoing pages given instruction how to avoid many diseases: now we address ourselves to the even more difficult problem of *preventing decrepitude*, of keeping at bay the onsets of advancing years, and of preserving in old age some share at least of the vigor of middle life. The attempt seems a daring one, it is true, but it is not hopeless.

Our audience now is a gray and reverend one; we speak to those no longer tormented with insatiable passions of youth, nor oppressed with the anxieties and cares of middle life. We will suppose that they have passed their fiftieth birthday, but have not yet been touched by actual decrepitude. What plans must they carry out, what resolutions make, what care take, to postpone to the very utmost this unwished-for and final act in the drama of human life?

We reply, in the first place they must choose that diet which most effectually resists the physical changes which lead to decrepitude; secondly, they must pass their time how and where the general activity of body and mind is best maintained; thirdly, they must be on their guard against those maladies which are peculiarly fatal to the aged.

That they may carry out the first of these directions, we shall speak of

THE CHEMICAL PREVENTION OF OLD AGE,

And shall commence with a few words on the chemical changes which take place in the body in advanced years. The bones of the aged are harder and more brittle, their flesh dryer and tougher, than in the young of the same species. This is because a mineralizing process is going on, and constantly increasing with age. There is an excessive quantity of the salts of lime and of carbon deposited, with a corresponding deficiency of water.

In the very old, even the coats of the arteries are found changed into bone, the joints are dry, the tissues with little juice, the mineral elements of the body far beyond what they are in the young.

Not only is this so, but this is the physiological definition of old age, and could we prevent these changes, as Dr. S. P. Cutter has remarked, "who shall say what might be the outside limit of life? Who shall gainsay that man's organism might not be so retained in its youthful condition as to furnish boys and girls a

hundred years old? And this, by an appropriate classification of food and drink for the different ages?"

Without sharing the full enthusiasm of the author just quoted, we do believe that a "bill of fare" for the old can be laid down which will tend largely to defer the changes mentioned.

In the first place, persons advanced in years should use only such food and water as do not contain mineral salts in large quantities, especially the phosphates. Secondly, they should drink plenty of water, and prefer those articles of diet which are heat-producing, for the animal heat always flags with them. Thirdly, they should use freely the vegetables containing acids, such as fruit, salads, etc. Sugar (which changes to acid in the stomach), lemons, oranges, apples, peaches, currants, are suitable. The rinds or peelings should, however, be discarded, as they contain a large proportion of mineral substances. Eggs and milk contain the minerals in excess of almost all other foods. Butter and fat have little or none.

Any vegetable acid containing hydrogen will decompose both the principal salts of lime in the system (the phosphate and carbonate), and might with propriety be used.

GENERAL RULES FOR THE PROLONGATION OF LIFE.

The dream of the alchemists, that some time or other some fortunate experimenter would discover the "elixir of life," of which he who quaffed would maintain himself in everlasting youth, has passed away

with the countless other fancies of an unscientific age. We have now learned that it is not by some magic potion that we can expect to prolong our years, but by a sedulous observation of the rules which conduce to the maintenance of all our organs and functions in healthy action. This is the true and only recipe for length of days.

Would we could say that these rules are generally known and observed! But such is far from being the case. An eminent German physician was asked the secret of securing a long life. "I will reveal it you," he replied, "and in a few words: Do not shorten it."

Under this seeming truism lies a world of significance. Centuries ago the sage Seneca wrote: "The gods have given us a long life, but we have made it short." And the observant critic of human nature, the witty La Rochefoucauld, who sums up the pith of many an essay in a single sentence, says: "Few people *know enough* to become old."

Too many people accept too willingly what they deem the natural weight of years. They make no resolute effort to give battle to Time, and yield themselves ready victims to the threatening infirmities of advancing age.

This is unwise. We have already said that comparative physiology shows we all have an inborn, natural right to live a hundred years each, and it is a right we should not willingly renounce. There is no occasion to consider ourselves past our usefulness at sixty or at seventy, nor even at eighty. Among most recent events, have we not witnessed some of the

most stupendous undertakings ever noted in the world's history commenced and carried out by men at an age when most are contented with the chimney-corner?

In the campaign of 1870, Von Moltke was seventy, the Emperor William seventy-four, and the Minister of War in Berlin seventy-six; while the most eminent leaders on the other side, De Paladines and Thiers, were also beyond threescore and ten. Such examples should teach us that it is folly to yield too readily to the pains and aches which years, of course, bring with them. Let our readers, whose hairs are silvered, and whose faces are ploughed with the parallels of time, take heart, and bear in mind those mighty words which the poet places in the mouth of the much-travelled Ulysses:—

> "My mariners, you and I are old;
> Old age hath yet his honor and his toil;
> Death closes all: but something ere the end,
> Some work of noble note may yet be done,
> Not unbecoming men that strove with gods."

With these preliminary words of encouragement, we proceed to speak of the natural changes which occur in the bodily functions in old age, and which, through ignorance, are often mistaken for signs of a disordered condition, and hence give unnecessary uneasiness, and, what is worse, lead to needless and hurtful medication. We shall sum them up under the heading,

THE NATURAL PROGRESS OF OLD AGE.

The cardinal fact in this progress is the increasing tendency to slowness of motion. It is perceptible in the muscular system in walking, in the circulation in the weakened pulse, in the special senses in their difficult appreciation of stimuli, in the nervous system in the dulness of perception, in the mind in its irresolution and timidity. Hence it follows that we cannot look for the same promptitude in the various functions in the aged.

Old persons often complain of *constipation*, and foolishly imagining that their bowels should act as frequently as in their younger days, take purgative medicines to move them. The practice is hurtful and unphilosophical. The bowels do not need to expel their contents so frequently, and they should not be forced to an unnatural activity.

The same is true of a tendency to *wakefulness*. "The sound child-sleeping, which the thunder cannot break," is not the property of the aged. It has long passed out of their possession, along with so many other of childhood's joys. They cannot expect to enjoy it. More frequently, old people sleep less than when they were young or in middle life, and are induced, therefore, to seek by anodynes of some kind to compel that slumber which refuses to be courted. This, too, except by the simplest means, is unwise, and sure to leave deleterious consequences. Opium, in all its forms, does not act well on the aged, and its various substitutes are NOT safe for habitual usage.

A marked feature in the natural progress of age is a greater *susceptibility to cold.* There is indeed a diminished power of producing animal heat, and consequently less ability to withstand an external low temperature. Hence it is that the winter months are so much more fatal to the aged, and exposure to severe weather is peculiarly dangerous to them. No fact in the physiology of old age is more important to the hygiene of that period of life than this. Every precaution should be used to avoid the consequences of a reduced temperature, and to supply by warm clothing and an even artificial heat this deficit in the natural caloric. To the old especially does the advice of the celebrated physician Boerhaave apply, who admonished his patients not to remove their winter clothing before midsummer, and to put it on again immediately thereafter.

Perhaps the cause of this deficiency of animal heat is the *change in the blood.* This fluid is found in old persons to exhibit an increased proportion of dark or venous blood, which signifies that it has not undergone its proper chemical changes in the lungs. It is also found that the walls of the bloodvessels become rigid and brittle, withstanding less securely the pressure of their contents, and more liable to be injured by sudden and violent pressure.

This brittleness, as we have already said, extends to the *bones.* A broken limb in an old person is at once far more liable to occur and far more tardy in healing than in a child. Indeed, a fracture in a very aged person often never unites. The importance,

therefore, of increasing care to avoid any such accident is very manifest.

Having thus briefly mentioned some of the most prominent landmarks in the journey of life as it advances towards its inevitable bourn, we shall next make some suggestions which will pleasantly delay the traveller and aid in smoothing his pathway.

THE DIET OF ELDERLY PERSONS.

The general principles of the diet of elderly persons do not materially differ from those which should guide us at all other periods of life. They only require to be repeated with additional emphasis. We have warned against excess at all times; we have said it is injurious at every age; we add that to the old it is more than that, it is immediately dangerous. A witty French writer has well said: "The youth recovers in three days from the dissipation of three months; the old man requires three months to recover from the dissipation of three days." Simply cooked, fresh, and varied meats, and all easily digested vegetables, are always permissible.

Some few points, however, should now receive especial attention. *Regularity* in the hours of meals seems in old age as in infancy, more than at other periods of life, essential to the well-being of the system. When the digestive powers are called upon at stated intervals, they respond more promptly than otherwise. Sometimes it is wise to take food more

frequently than before. But this should never be done merely occasionally and irregularly.

The *loss of teeth*, so common in advanced life, must either be supplied artificially, or else articles of diet should be chosen which do not require mastication, as soups, jellies, boiled vegetables, tender meats, fish, etc. We wish to direct especial attention to this point, as it is probably *the most frequent* cause of bad health in advanced years. It is essential that whatever food be taken be well chewed, and mixed with saliva before being swallowed. Unable to do this, very many, who lose their teeth when forty or fifty years of age, overtask their stomachs, become victims to various forms of dyspepsia, impair the nutrition of their bodies, and prepare very surely for themselves a short and wretched old age.

We have known instances where proper attention to this single admonition has converted a miserable invalid, fast losing hold on life, into a hale and hopeful man. One of the precepts for securing longevity which some not over-conscientious writer gives, is to have "a good stomach, and a bad heart." So far as the first half of the recipe is concerned, we are of one mind with its author, but we do not indorse the second article he recommends (by which he means an indifference to the sufferings of others).

PHYSICAL EXERCISE IN OLD AGE.

It is curious that there should be any disagreement among intelligent physicians as to whether it is best to

take active physical exercise in old age; yet it is true there is quite a discrepancy on this point. Some say the powers of life are longer and better maintained by comparative repose; that the old should "guard their fires," and husband with parsimony what strength they still have. Others assert that the muscles may be longer kept in vigor by exertion, regular, universal, and pushed as far as may be within the limit of positive fatigue.

We are decidedly of this latter opinion, and feel sure that it is justified by the test of all opinions—experience. We agree entirely with an eminent authority in medical matters, who has said: "Whatever habits of living sustain the greatest number of organs or functions in a healthy state (having regard also to the relative importance of these functions), may be considered as most conducive to length of life." It is better for the old to take regular daily exercise of that character best suited to their individual circumstances, but always *within the limits of exhaustion.*

It is of prime importance to heed this last caution. Fatigue, which is never desirable at any stage of life, is peculiarly harmful to the aged, whose recuperative powers are feeble, and whose bodies are very slow to recover from any excessive drain upon their forces.

As years increase, the circle of exercises which it is proper to undertake constantly narrows, so that at last it may be confined to walking up and down a chamber. But the practice should never be wholly abandoned.

Not unfrequently we see examples of vigorous old

men who, not appreciating the actual progress time has made, undertake exercises of altogether too violent and continued a nature for their forces, and who in consequence suddenly succumb. Let no one who has passed his "grand climacteric," as the ancients used to call the sixty-third year of life, trust too confidently to his powers, for a single failure may entail irreparable consequences.

In reference to the particular character of exercises which are suitable to the aged, we may lay down the general principle that those are most beneficial which draw the blood from the internal organs toward the extremities, such as we have specified at length in the chapter on exercises in general. Walking, light gymnastics, passive motions of the extremities, riding, billiards, etc., are of this character.

On the contrary, those exercises which call into violent actions the lungs or heart should be scrupulously avoided, such, for example, as running, swimming, boxing, hard rowing, leaping, climbing, etc., and also those which call for any sudden and extreme expenditure of strength, as lifting, throwing, jumping, etc. Instances are not at all rare in the annals of medicine where a neglect of these precautions has resulted in sudden death. The condition of the lungs and the heart and arteries in the aged forbids most positively urging them to sudden and excessive action. All exercises at this epoch should have precisely the opposite tendency, namely to equalize the circulation by inviting it to the surface, the skin, and the extremities, while the internal organs are relieved in a mea-

sure of their fluid contents, and thus the dangers from their congestion are diminished.

One of the most valuable effects of well-directed exercise is the

PRESERVATION OF WARMTH IN OLD AGE.

This, as we have said, is of the highest importance. Exercises which call the blood to the extremities greatly favor it, and there are other means besides this, and the obvious ones of clothing and artificial heat, which may appropriately be employed.

One of the most efficient of these is rubbing the body from head to foot every morning with a coarse, dry towel. Persons who are vigorous, and who have been accustomed to it in earlier years, will find the effect increased by a cold shower-bath, continued for only a second or two. But others should not attempt this somewhat violent procedure.

ADVANTAGES OF TRAVEL.

In this respect, a temporary change from a cold to a warm climate during the winter months exerts a permanently beneficial effect. It invigorates, and for a long time, the heat-producing faculties of the body. We cannot do better than insert here some admirable remarks on this point from Dr. D. G. Brinton's *Guide Book to Florida and the South*:—

"There is an era in life when no actual disease is present, but when the body visibly yields to the slow

and certain advance of age. The mind, too, sympathizes, and loses the keenness of its faculties. With most, this is about the period of sixty. It has long been noticed how fatal this period is. It has also been noticed that it is the winter months especially that are dangerous to persons at this age. The old Romans had this pregnant expression: '*inimicior senibus hyems*'—winter, the foe of the aged. Modern research proves its correctness. An English writer, Dr. Day, calculating from nearly 55,000 cases over sixty years of age, discovered the startling fact that the deaths in January were within a small fraction *twice as many* as in July. Such an unexpected statement reminds us of that significant expression of another statistician, who has studied closely the relation of mortality and temperature: 'Waves of heat are waves of life; and waves of cold are waves of death.' With these and a hundred similar warnings before us, we are safe in saying that in many cases two or three winters in a warm climate about the age of sixty, will frequently add ten years to life."

This good advice we fully indorse.

The articles of diet which are especially the heat-producers should not be neglected. Milk, fresh and warm from the cow, is one of the best. Fat, whether in its medicinal form as cod-liver oil, or as it appears on the table, should be freely eaten when it does not disagree.

The clothing, of course, should be abundant, and chiefly of silk or woollen fabrics.

At night, the apartment should in cold weather be

moderately warmed, and the windows *always* be closed. It is a great advantage to the aged to sleep with a bedfellow, healthy and much younger. The equable temperature thus maintained is extremely salutary for the senior, if not so for the junior. It has been remarked that those men who have attained extraordinary longevity, have almost without exception married a second or third wife late in life. The biography of King David proves that this practical point in the hygiene of old age was fully known and appreciated by the ancient Israelites.

MENTAL EXERCISE IN OLD AGE.

One of the most unpleasant prospects connected with extreme years is the decadence of the intellectual faculties and special senses which is so frequently their accompaniment. The eye grows dim, the ear dull, and these two avenues to the mind thus impeded, that divine faculty itself loses its earlier powers and sinks towards a state of unconsciousness. The memory retains few impressions, and recalls, if anything, only the facts of long past years.

Are these sad changes avoidable? We believe they are, at any rate in a great measure.

Those who fear the mental changes which they have seen in others, have to encourage them the examples of many old men who have accomplished astonishing feats of intellect. Buffon and Alexander von Humboldt both wrote their greatest works when long past seventy. Sir Isaac Newton when beyond eighty

finished his Commentary on the Book of Daniel. Fontenelle considered his mind was never more vigorous than at fourscore. Dr. Samuel Johnson learned the Dutch language when beyond sixty. Sophocles still charmed the people of Athens by his poems when nigh eighty. An old acquaintance of ours mastered German when sixty-three, and lived for over twenty years longer in full possession of his faculties.

These facts, and we could readily extend the list, hint to us the secret of retaining the mental powers in age. It is *to use them;* not to permit them to rust out, and become obscured from inertia.

It may be well to point out *the earlier symptoms of mental weakness in the aged*, so that our readers may be upon their guard against them. One of the very first is a want of power in recollecting words and names, which becomes evident while the memory of facts remains still unimpaired. This is strikingly shown in cases of paralysis and diseases of the brain, and in a less degree in all who are verging upon mental decrepitude.

The next step on the downward road is shown in the dependence of the course of ideas on the sounds of words. A word or phrase will carry off the mind to an entirely new and foreign subject without the consciousness of change; the conversation wanders from subject to subject without any other guide than the very slightest relation of time or space, or than some sound which evokes the memory. This is the explanation of the garrulous and vague talk of the

old, and depends upon their loss of power to follow out a connected train of ideas.

These symptoms indicate the two principal points in mental exercise which should engage the attention of the old. They should correct them by making a particular study of names and words. For this, nothing is equal to acquiring a new language, or studying some natural science which demands a familiarity with new and unknown terms and appellations. Secondly, they should make a particular effort, in conducting a conversation or in writing a letter, always to bear in mind the leading topic to be discussed, and resolutely avoid any digressions from it.

Another peculiarity of the mind of the aged is that the impressions of the present are much less vivid than those of former years. Many old people can tell with accuracy the events of half a century ago, but hardly remember what transpired last month, or the contents of the last book they read. This is not so much a defect of memory, as it is a *want of attention* to what is going on around them. They are indifferent to the present, and dwell in thought chiefly upon the past. In other words, it is a bad habit which ought to be broken or never allowed. It has universally been remarked that those who enjoy a "green old age" retain a fresh and vivid interest in the matters of daily life. This is as much and more the cause than the consequence of their mental vigor.

The time never comes in the life of a man or a woman, when he can seclude himself from the world, and bid farewell to its pleasures and its sorrows. On

the contrary, it becomes "very stuff o' the conscience" for the aged to busy themselves with the present and "let the dead past bury its dead," for thus alone can they hope to retain the full powers of life. The old should seek the company of the young, as the young should prefer that of the mature.

TEMPER AND EMOTION.

Apart from these rules of mental training, the disposition and temper have much to do with the comfort and prolongation of life in the aged. Cheerfulness and serenity, laudable at all ages, here become necessary. Sudden emotions, whether of joy or grief, violent passions, and acute sensations are condemned by the voice of nature herself, who, aware of the fragility of the golden bowl of life in the aged, blunts their sensibilities, and instils an inclination to calmness and impassiveness.

What the old more especially have to strive against is not strong emotion, but groundless anxiety, timidity, irritability, melancholy, and parsimony. These are their mental vices, and these they should deliberately encounter. The promises of religion should sustain and comfort them, they should cultivate habits of agreeable social intercourse, they should relax rather than tighten their grasp on that treasure which they can hope to enjoy for only a few years more, and they should aim to set before others an example of fortitude and resignation under the inevitable ills to which they are subjected.

HOW TO PRESERVE THE EYESIGHT IN ADVANCED LIFE.

Every one knows that most persons between the age of forty and fifty have to commence wearing spectacles, or at any rate to compromise the matter by the occasional use of the eyeglass.

The eye is affected in the reverse of what it is in near-sighted persons. In these the ball is too convex, in the old it becomes too flattened. They can see more distinctly at a distance than close at hand, and are therefore familiarly called "long-sighted."

The strength of the eye also becomes impaired, and its ability to do full labor diminished. The precautions to avoid this condition should begin early. The light in which persons read or sew or do any work requiring close sight should be neither very bright nor yet dim; the eyes should always be rested when they feel fatigued; they should not be tasked in the twilight nor when lying down; they should be freely bathed with cold water or salt-water every morning; and when injured or inflamed, skilled advice should be had early. From the time the earliest symptoms of long-sightedness appear, the following simple procedure should be observed several times a day, and will be found to be very efficacious in retarding the advance of the complaint. Pass the fingers several times over the closed eyes with a gentle equable pressure, always commencing from the outer angle and proceeding toward the bridge of the nose. This prevents the flattening of the surface of the eye, which is the cause of the impairment of sight.

When the sight is already impaired, it is much better to provide a pair of spectacles of a low power than to do violence to the organs by efforts to dispense with these valuable though unwelcome aids.

HOW TO PRESERVE THE HEARING.

The deafness with which elderly people are often annoyed proceeds in some cases from an absolute want of nervous power, and in these cases nothing can be done. But in a large number it is dependent on preventable causes. The commonest is an accumulation of wax in the ear. Even if this is not in sufficient quantity to choke up the avenue, it may give rise to slow inflammation, which can result in incurable deafness. It is a prudent precaution, therefore, to have the ears examined by an expert physician every few months, and any accumulation of wax carefully removed. We do not recommend persons to attempt this for themselves, even by such an apparently simple process as syringing their own ears, for it is very easy to do serious damage to this delicate organ by slight carelessness or awkwardness. Moreover, many will think they have cleaned the ear nicely, when in fact they have not even loosened the impacted wax.

A frequent cause of impairment of the hearing is the abuse of tobacco. This powerful drug seems to act with peculiar force on the organs of special sense, and leads to singing and roaring sounds in the ear and to deafness. The old, who insist on continuing its use, should at least do so in great moderation.

AT WHAT AGE TO RETIRE FROM BUSINESS.

Physicians are often asked this question. The custom of our country is such that when a man reaches sixty or sixty-five years of age, it is expected that he will withdraw from the active participation in business affairs, and pass the rest of his life, if able, in doing little or nothing—taking care of his investments, if he has any. The consequence of this generally is, that the old man, deprived of his customary objects of interest, and with no social or literary resources to fall back upon, soon grows irritable and mopish, fancies his health is breaking down, sets to work to improve it by elaborate cares and medication, and worries himself into his grave years before his time. The fatality among men "retired from business" has often been remarked, and this is its explanation.

Nevertheless, our advice is not to remain immersed as deeply as ever in the toil of affairs. It is better, gradually, as age advances, to diminish the pressure, to avoid great risks, and escape tormenting anxieties, by confining and lessening one's enterprises. More time should be given for travel, rest, and recreation. An interest should be cultivated in public affairs and in works for the public benefit. But some direct personal interest in the transactions of daily life, in the sphere to which we have been accustomed, should ever be retained.

THE PREVENTION OF THE DISEASES OF THE AGED.

We have before remarked that each epoch in human life is exposed more particularly to certain diseases, and the fatality at any given period is found pretty uniformly to be due to the same maladies. Hence it is an important part of hygiene to point out to what diseases we are most exposed at various ages, and to inform us by what means we can most successfully avoid them.

From the age of fifty upward, the mortality chiefly arises from apoplexy, inflammation of the lungs, cancer, chronic bronchitis, and diseases of the heart. Deaths are frequently sudden, the system requiring little to break it down. The precautions necessary to prevent these diseases we have already given in part, and shall refer to some of them again when we come to treat of "Sudden Death."

Death from "Old Age," although it appears on the mortality records, has in fact no existence. The mere great age of a man does not destroy. The grasshopper may become a burden to him, but it requires some definite cause to stop the sluggish stream of his life. The gradual failure of the physical powers which carries off many old people is usually a defect of nutrition; the stomach no longer does its duty, and they die of *inanition*—of a painless starvation.

REJUVENATION IN OLD AGE.

A curious physiological fact almost encourages us to hope that some day or other the true elixir of life

may be found which will renew youth in worn-out frames. For nature herself strives to do this in some instances.

Sir Walter Scott, when growing infirmities made him speak of himself playfully as coming round to the starting-point of life again, said he wished he could cut a new set of teeth. Although unaware of it, he did not wish for an impossibility. In quite a number of instances of great age it has been remarked that persons in their seventieth and eightieth years, when others cease to live, acquire new teeth, and new hair, not gray, but the color of that they had in youth. Their sight, previously failing, improves, and they can discontinue spectacles. Their hearing becomes more acute, and they commence a new period of life which may last from ten to thirty years.

Did we only know what it is in the system which brings about this pleasant restoration of the faculties, we might cultivate it, and, by applying the proper means, see our venerable sires roll back "the onward flowing tide of time" and resume the strength and looks of their younger days.

An English lady, named Susan Edmonds, who died a few years since at the age of 105 years, recovered her natural black hair when ninety-five years old.

The restoration of the sight of aged persons is by no means uncommon, and is familiarly known as "second sight." There was an ancient superstition in Scotland that such persons could see the spirits of the departed, and hence the phrase came to have a supernatural significance also.

Dr. Hufeland relates that he knew an old magistrate on the Rhine who lived to the age of 120 years, who in the last ten years of his life had several sets of teeth. As fast as they dropped out, which they did without pain, nature supplied him with a new set.

Reflecting upon such examples, we see that the second childhood of the aged may be the prologue to a second youth.

CHAPTER X.

ON DEATH.

CONTENTS.

The fear of death—Sudden death—The signs of approaching death—The last words—Presentiments of death—Buried alive—Deceptive appearances of life—Tests of actual death.

WE have spoken of Life and of Health—joyous themes, which all dwell upon with delight, which we fain would part from never, of which we never have enough. Now, however, it devolves upon us to speak of Death, the period and terminus of life, the grievous theme associated with all that is dark and dreadful to the fancy.

Our purpose is not merely to discuss it with the cold language of science, but to divest it, if possible, from some of the horrors which surround it. For, as Montaigne says, "He who should teach men to die, would teach them to live." And, first, to say something concerning

THE FEAR OF DEATH.

In not a few instances we have known the dread of death destroy the joy of life and sour the cup of pleasure with the fearful looking for its inevitable termination. The strongest minds do not rise superior to

this. Dr. Samuel Johnson, the lexicographer, was haunted all his life by this apprehension, philosopher and Christian though he was.

The ancients courted this thought—strange as it seems to us—to add zest to their pleasures. At their feasts a skeleton or a faithful image of a corpse was placed in the banquet hall, that the guests thus grimly reminded of the brevity of life, should hasten to suck all its sweets. "Eat, drink, and be merry, for to-morrow ye die," was the sermon this ghastly monitor preached to them.

Hardly wiser than they, we banish with sedulous anxiety from our social life and our daily conversation all reference to the fact of death. We employ circumlocutions and metaphors to express our meaning, and say of a deceased friend, "He has passed away," or "He has fallen asleep."

This not merely discloses, it actually fosters, the sentiment of dread which is entertained toward death. The opposite plan should be adopted. We should not banish, but familiarize ourselves with the thought of our fate. The philosopher Descartes devoted five minutes every day to the contemplation of his own death, considering how near it might be, how certain it was, how calmly he should meet it, and how he should prepare himself for it. By thus becoming familiar with the idea, it lost to him all its terrors.

We believe his plan excellent. And to assist further those who would thus courageously look in the face of the worst that destiny can do, we bring some consoling facts from medical experience.

Two sentiments give contemplated death its sting—the love of life, and the fear of suffering in that mortal agony.

THE LOVE OF LIFE.

To the young, the happy, and the strong, the thought of death is indeed loathsome. But let them remember it is different when the body is racked with pain, when the flowers of life have withered, when the power of enjoyment has passed. They will not feel that strong desire to live; they will look with calmness, perhaps with pleasure, to the abandonment of earth; they will become

"Too satiate of life, to strive with death."

The eminent physician, Sir Henry Holland, beautifully says on this point: "No previous reason or feeling, no judgment of vigorous health, can afford a right estimate of the relation the mind assumes to death in the latter hours of life, even where little impairment of the faculties has occurred. This is especially true when long and painful sickness has been the prelude to the event. The earnestness to live abates as the possession of life is gradually withdrawn."

The young need not fear, therefore, to have to strive with that warm and pulsating delight of existence which is now theirs. By a beneficent arrangement of nature, the mind is prepared for its inevitable change.

THE PAIN OF DEATH.

In regard to the second cause of fear, medical men are universally of opinion that the *pain of dying* is not great. Some, indeed, maintain that the sensation is a pleasurable one. They base this opinion on the well-known fact, that in cases of sudden death, as on the battle-field, the expression on the face of the corpses is usually soft and calm—not as if the last sensations had been painful, but the reverse. Then, also, it is no uncommon sight to witness a pleasurable expression pass across the features of a person dying of some slow disease. In some, whose countenances have been distorted by the pain and peevishness of long illness, the original mildness of features re-appears at this moment.

On the other hand, in most sudden and violent diseases, such as fevers and cholera, the person sinks into a state of stupor for hours or days before death, so that sensation is lost or impaired, and neither fear nor pain can be felt. Consequently, so far as the physical fact of death is concerned, it is, so far as we can judge, not of a character to inspire terror.

Further evidence to this effect is given by the last words of the dying. These lead us to believe that the sensation is not a painful one. Thus the eminent London physician, Dr. William Hunter, said in his last moments: "If I had strength to hold a pen, I would write how easy and pleasant it is to die." The Lady Glenorchy's last expression was: "If this be dying, it is the easiest thing imaginable." Louis

XIV., as he felt himself passing away, whispered: "I thought that dying was more difficult." His words were not unlike those of the aged Fontenelle, who at the ripe age of a hundred years was on his dying bed. An anxious friend asked him if he suffered. "I feel no pain," was his reply, "only the difficulty of living." Those who have been rescued from drowning or hanging at the very last moment before life was extinct, nearly all state that they did not suffer after the first shock.

We may conclude this topic by recommending to our readers the eloquent passage in the *Spectator*, in which Addison speaks of this theme as follows:—

"I know but one way of fortifying my soul against all gloomy presages and terrors of death, and that is, by securing to myself the friendship and protection of that Being who disposes of events and governs futurity. He sees at one view the whole thread of my existence; when I lay me down to sleep, I recommend myself to his care; when I awake, I give myself up to his direction. Though I know neither the time nor the manner of death I am to die, I am not at all solicitous about it, because I am sure that He knows them both, and that He will not fail to support and comfort me under them."

SUDDEN DEATH.

Some physicians, and many who are not physicians, believe that sudden death is more common now than formerly. It is peculiarly terrifying, and, for the sake

of those dependent upon a person's care or labor, most desirable to avoid. In the sublime litany of the English Church, one of the prayers is for "deliverance from sudden death." Its causes, therefore, deserve our close attention, with a view to see if they may not be avoided.

When a person drops dead in the street, every one at once attributes it to "heart disease." Very few of such occurrences really arise from this cause. Heart diseases, as a rule, are slow in their effects and in their termination. The real origin of sudden deaths has lately been very carefully examined by scientific men in Europe and this country. A number of cases have been thoroughly studied, and with valuable results.

For example, out of sixty-six cases of sudden death, in which the bodies were examined by expert anatomists, only two were found to have died of disease of the heart. Nine had died from apoplexy, while in the large majority, forty-six out of the sixty-six, the cause of death was congestion of the lungs, that is, the lungs were so full of blood they could not perform their proper work.

Wherever these investigations have been repeated, pretty much the same results have been obtained. Of course, we here leave out of account accidents, such as sunstroke, which annually destroys many in our climate. The two chief causes, therefore, remain congestion of the lungs and apoplexy, and it is gratifying to know that both these can, to a great degree, be avoided by proper precautions. These, so far as apo-

plexy is concerned, we have already recapitulated on a preceding page. The principal causes that produce congestion of the lungs are cold feet, tight clothing, costive bowels, sitting till chilled after being warmed by labor or an active walk, going too suddenly from one extreme of temperature to another—as, in winter, from a heated room into the cold air, or the reverse—long and loud speaking, sudden and violent emotion, whether of grief or joy, and exposure to damp cold.

As sudden death from accident or disease may occur to any one and at any age, it is a wholesome prudence to set and keep our houses in order, ever prepared, in the words of a wise adviser, to die to-morrow, or to live a hundred years. The church historian Neander was one who successfully cultivated this happy frame of mind. Asked, one day, what he would do, were he certain to die the next day, he replied, he would deliver his customary lecture on ecclesiastical history.

Sudden death was esteemed by the ancients a blessed and fortunate fate. Julius Cæsar, by a strange coincidence, the day before his assassination in the Capitol, expressed the wish that he might die suddenly when death did come. The same desire was common to the naturalist Pliny and the Emperor Augustus. The essayist Montaigne, who seems to have been positively haunted by the fear of death, agreed with them, saying that as he must swallow this bitter pill, he preferred to do it without chewing! He evidently was of one mind with the old English writer Thomas Fuller, who, after discussing the various modes of death, slow and sudden, violent and natural, finishes

with the brief conclusion, "None pleaseth me!" The majority of our readers will doubtless agree with him.

THE SIGNS OF APPROACHING DEATH.

Every one is called at some period of his life to stand beside the death-bed and witness its solemn scenes. Often it becomes of the utmost importance to judge how soon the end will come and to recognize its approaches. We shall draw the picture as it presents itself to the view in natural death.

The patient lies exhausted, the strength gradually yields, convulsive tremors slightly move the muscles, the pulse beats feebly and irregularly, the breathing is also irregular and gasping, and the breath drawn with difficulty. Often some phlegm obstructs the air in the windpipe, causing a gurgling sound, which is familiarly known as "the death rattle." The temperature lowers, the hands and feet growing perceptibly colder. The features become drawn and rigid, the nose contracts and sharpens, the eyes become glazed and fixed, and the limbs outstretched. The senses grow dull, first the sight, next the hearing.

While it is not common, it is not very rare to witness a strange brightening of the intellectual powers a few hours before death. Insane persons have been known all at once to recover their reason a short time before their decease, and very old persons, who for years had passed into their second childhood, resume their earlier powers.

Medical wisdom is unable to explain this wonderful

change, though it has long been observed. Even the ancient classical writers refer to it. Cicero speaks of it in one of his essays, and adds the explanation: "As death approaches, the soul puts on its divine nature;" and Plutarch likewise discusses it. To us, this occasional resumption of its lost faculties at the time of its separation from the body, is a proof that the mind of man lives another and a higher life beyond the grave, and, though temporarily obscured by the frailties of its fleshy habitation, in no wise partakes of those frailties, but is fitted for an independent and immortal existence.

The readers of Cervantes' immortal romance, Don Quixote, will remember that the hero, when on his death-bed, becomes fully aware of the latent insanity which has characterized his acts, and renounces the folly of his knight-errantry. The sketch is drawn with the fidelity of nature by a master-hand.

A similar apparent change for the better is frequent in several severe diseases, as hydrophobia, and inflammation of the brain. The fever lessens, the delirium subsides, the pain departs, and the attendants, sometimes even the physician, are led by these deceptive signs to believe that the crisis is past. When inflammation of a part passes into mortification, the pain, which before has been almost unbearable, suddenly leaves, and the patient is comparatively comfortable, and even cheerful. But a few hours show that the lull and rest are but the premonitions of the everlasting rest of death.

The French mathematician Charleval was attended in his last illness by two physicians. As they entered the room one

day, the younger noticed that the patient seemed in every respect easier, and, anticipating a speedy recovery, exclaimed to his associate: "Look, doctor! the fever is going." "No!" replied his older and wiser companion, "it is not the fever that is going, but our patient."

THE LAST WORDS.

Many persons have found a pleasure in collecting the last words spoken by the departed, and it has been thought that possibly from them some hints might be gleaned of the unknown hereafter. But the physician who watches by many death-beds soon becomes convinced that, when intelligible at all, they either indicate a rambling mind or refer to the physical changes that are taking place, or to emotions and sentiments long familiar to the individual. They may afford matter for the curious, but can throw no light on the future.

As death approaches, the eyes lose the power of vision, and the apartment seems to grow dark. Often the dying words refer to this, as those famous ones of Goethe's, "Light, more light" (*Licht, mehr licht*). So Dr. Adams, the author of "Adams's Roman Antiquities," and for many years principal of a large school, said in his last moments: "It is growing dark. The school is dismissed." Here we perceive the intellect was wandering, and the schoolmaster thought himself once more engaged in his favorite occupation. Such was also the case with Napoleon, who imagined himself once more on the battle-field, and dying, muttered "*Tête d'armee;*" and with Frederick the Great, whose mind reverted to his long and arduous marches, and

said "*La montagne est passée, nous irons mieux*" (We are over the hill, we shall go better now)." Daniel Webster's last words, so full of meaning, "I still live," were spoken as he recovered from a deep faint, and were no doubt a conscious utterance, intended to reassure his friends.

PRESENTIMENTS OF DEATH.

There are not a few authentic instances on record where persons have foretold with precision the period of their own death. False presentiments of this kind are, however, far more common, and any such gloomy feelings should be resolutely combated and banished. We have known persons, and some young and vigorous, who made themselves wretched for months, because they imagined they would die at a certain time. Such feelings are false and dangerous.

Persons have died because they made up their minds that they must die: and, under any circumstances, to indulge such a belief is unwise, depressing, and needless.

In cases of long sickness, prostration, and great age such presentiments may be regarded as intimations of serious though perhaps unobserved changes in the system. This is the explanation given by the eminent anatomist and surgeon, John Hunter. "We feel," he says, "that we shall not live, for the powers of living become weak, and the nerves communicate the fact to the brain."

John Hunter himself was a striking example of the

fact he thus explained. He was well aware that he had a disease (aortic aneurism) which might any day cause his death. As he went to the hospital one day to discuss a scientific question, he remarked that if he became excited, he would die that morning. The controversy, as he feared, became heated, and, as he predicted, he fell and never rallied.

Still more remarkable was the case of the painter Hogarth. Feeling his powers decreasing, he set to work upon a strange and weird picture. A friend, gazing at it with astonishment, asked its name. "The end of all things," replied the artist. "Why, then," jokingly replied the gazer, "the painter will end too." "I know it," said Hogarth, gloomily; "it is my last work." A few weeks after it was finished he was dead.

The mathematician Ozanam was a well-known teacher in Paris some years ago. At the commencement of one term, while apparently in perfect health, he refused to take any pupils, on the ground that he would not live to the close of the session. His mind was thought to be affected, but, true to his presentiments, he died in a few months.

BURIED ALIVE.

Every few months some harrowing narrative of premature burial goes the rounds of the papers, and hundreds of readers are tormented night and day with a horrible fear lest they should be the victims of some such dreadful mistake. We feel it a duty to reassure

them as much as possible on this point, and shall do so in two ways: first, by showing how extremely rare and improbable any such accident must be; and, secondly, by giving such a number of tests of actual death, that any one can determine positively that the spirit has forever departed.

The stories referred to do not bear any examination. Nine in ten are utterly fictitious, and the tenth rests on misunderstood facts. It is well known that during the decomposition of the body gases are produced which may disarrange the clothing, and even turn the body by their expansion. Any such motion, when discovered, is erroneously attributed to voluntary action after burial.

As for actual instances, they are exceedingly rare. In Munich and at Frankfort-on-the-Main they have for many years been accustomed to keep the bodies of those dead, or supposed to be dead, for a certain number of days, to prevent premature burial. Wires are fastened to their wrists, and attached to these are alarm bells, so that the slightest movement would call assistance. Means of restoration are at hand, ready for any signal. Although for many years these precautions have been taken, only one instance of mistaken death has been known in Munich, and none whatever in Frankfort.

Novel-writers love to depict the similarity of trance, or catalepsy, to death, and to represent them as mistaken, the one for the other. Such occurrences belong wholly to the realm of fiction, and need give no uneasiness. The only possible liability of error

would occur where in sudden and violent diseases, as in cholera, the body is hurried to the grave, supposed to be lifeless but really in the condition known as collapse. But it is doubtful whether even this has ever occurred. In fine, with ordinary precautions, there is not the slightest danger that such a mistake could occur, and solicitude about it, either for ourselves or others, is entirely unnecessary.

A French writer, some years since, collected together all the alleged cases of premature burials on record. They were less than a hundred in number, and not one-tenth of them in any degree authenticated.

There have indeed been a few cases where a fainting fit was hastily concluded to be death. A famous one was that of the Abbé Prévost, the author of the charming romance "*L'Histoire de Manon L'Escaut.*" Returning from a long walk to his house, he fainted, probably from fatigue. An ignorant surgeon was summoned, who pronounced him dead, and, in order to ascertain the cause of his sudden decease, proceeded to open the body. The pain brought the Abbé to his senses, but the incision proved fatal!

A Frenchman, by name Civile, gained considerable notoriety by always signing his name with the addition: "Thrice dead, thrice buried, and thrice restored to life by the grace of God." But an examination of his story, which was probably true, showed that he was merely left for dead on the battle-field that often, and never actually buried.

Several extraordinary instances are, however, on record, where, by a voluntary effort of the will, persons

could throw themselves into a condition which even practised medical men could not distinguish from real death. One of the most famous is that of Col. Townshend, an English gentleman who lived in the last century. On one occasion, in the presence of three physicians, and merely to gratify their curiosity, he illustrated this strange power by passing into a state so closely resembling death that they could not discover a sign of life for half an hour, and concluded that he had at last pushed his experiments too far. To their surprise, after that interval, he returned to his full powers. There can be no doubts either as to the fact nor as to the skill of the physicians who examined him.

One of the Oriental sects of religious fanatics embraced in Brahmanism have, for centuries, made the attainment of this power of suspending visible life the highest proof of virtue, and, therefore, the object of greatest ambition. It is related of one of their recent teachers that "so eminent was he in the practice of the divine commands, that he could suspend his breath for four-and-twenty hours."

But even this model of virtue was surpassed by one of the East Indian fakeers, who threw himself into a trance, was buried for forty days, and his tomb watched night and day by a guard of English soldiers, and, after all this, was restored by the skilful manipulation of his servant! Yet this narrative reaches us on testimony that seems to admit neither of falsity nor error.

With these possibilities before our eyes, we naturally desire to know what are the signs of actual death;

for although mistakes to the extent of burying the quick for the dead almost never occur, we wish to place them entirely out of the pale of possibility.

Before proceeding to these signs, however, we wish to acquaint our readers with certain

DECEPTIVE APPEARANCES OF LIFE,

Which are not unfrequently observed after actual death has taken place, and which, when misunderstood, give rise to the most painful anxieties on the part of friends, and perhaps injurious comments by spectators. The first of these is

CONTINUED WARMTH OF THE BODY.

Sometimes, especially after violent fevers, the body is actually warmer for some hours after death than it was during life. This is frequently seen in yellow fever, and probably it depends upon the rapid changes toward decomposition which are taking place. At the expiration of about twenty-four hours this heightened temperature disappears.

COLOR IN THE CHEEKS.

That the roses of health should bloom upon the face of death, is indeed a strange phenomenon; yet it is not unusual. Sometimes, instead of the dusky pallor and lividity which we generally see on the countenances of the departed, we note a flush and color which emulate the roseate hue of youth and vigor.

The cause of this is the mode of death. When it is of such a character as to leave the small bloodvessels of the skin filled with blood, instead of draining them back toward the heart (as is usually the case), the red color of the vital fluid is seen on the surface after the spirit has departed. When the other signs, which we shall shortly rehearse, prove that the great change has come, this illusory show of life need never be regarded.

MUSCULAR MOVEMENTS.

The muscular changes which occur at death are two: first, in the agony itself, a complete relaxation of all the limbs; and, secondly, some hours after, averaging from three to twelve, commences a stiffness of the muscles over the whole body, called the "rigidity of death." This latter is not unfrequently accompanied by slight contractions, which may distort the features, move the corpse, or even force it into strange and striking postures. A physician, who had an extensive experience in a hospital during a violent cholera epidemic in one of our large cities, states that he had several times observed that the corpses of those who had perished with this formidable disease had the arms drawn and contracted into the attitude of prayer! To superstitious minds this would have passed as a miracle; in an unenlightened community the presumption would have been that death was only apparent; but to the trained and scientific observer it was only a singular illustration of the contraction of muscular tissue after death. Motion may also take place after

decomposition has commenced, caused by the development of gases in the body. The physicians to the Morgue in Paris, where unknown corpses are left for recognition, say it is no unusual occurrence for them to roll off the tables, and they occasionally have to tie them to the slabs on which they repose.

BLEEDING AFTER DEATH.

As a rule, at death the blood is withdrawn from the arteries and coagulates in the veins. But this is not invariably the case, as it is the peculiarity of some diseases that they cause a change to take place in the vital fluid which retains it in its fluid condition. Hence, it is possible that for many hours after death has actually occurred, blood will flow from a cut, or on moving the body. It is a purely mechanical phenomenon, which should excite no astonishment.

In ancient times, when a person was killed by unknown hands, the suspected murderer was forced to lay his hand upon the body, when it was believed that, were he guilty, the corpse would bleed afresh. As blood did occasionally flow from the wound under the pressure of the hand, some lost their lives by this fallacious test, which was the worse chosen, because the innocent would be more apt to press firmly than the guilty.

TESTS OF ACTUAL DEATH.

A wealthy Frenchman, haunted perhaps by a horror that he should one day be buried alive by mistake, not long since offered a prize of twenty thousand francs for the discovery of a simple, infallible, and readily applied test of death. It is true enough, as may be judged from this, that we have not long been in possession of any such test. The usual signs of death are, no doubt, all of them open to error.

The *pallor of the face* may be absent, as we have above remarked, and is present in collapse and other conditions where life is not extinct.

The *coldness of the skin* may also be absent in death, or present in life.

The *rigidity of the muscles in death* is very closely simulated by the convulsive rigidity in certain nervous diseases, and by stiffness from great cold.

The *absence of breathing*, if absolute, undoubtedly means death. But it cannot be denied that persons may live by breathing so gently and inaudibly that a bright mirror before the mouth will not be moistened, nor the flame of a candle caused to flicker, nor a shred of down swayed to and fro by the breath, nor any heaving of the chest be visible.

So also the *pulse may cease* at the wrist and in the neck, and the throbbing of the heart be no longer detected, and the soft murmur of the hurrying blood be no more audible, and yet life may be there.

Is there, then, any absolute, simple, readily applied

test of actual death? We now perceive that the individual who offered a handsome sum for the solution of this question appreciated correctly the importance of ascertaining one which might be made familiar to all, and which would forever prevent the recurrence of the horrible casualty of premature burial. Naturally enough, his liberal offer has stimulated physicians to devote unprecedented attention to this point, and several tests have been discovered, each said to be infallible, and which taken together, certainly are infallible. We proceed to enumerate them.

THE BLISTER TEST.

Every one knows that if an iron at dull red heat be brought in contact with the skin during life, a blister is at once raised upon the surface. On the contrary, if the same application is made to a corpse a few hours after death, no blister whatever is caused, but the surface is only burnt and charred.

THE NEEDLE TEST.

If a brightly polished steel needle is plunged into the flesh of a living animal and withdrawn after a few minutes, it will shortly become tarnished and rusted. But if inserted into a dead body for the same length of time and withdrawn, it will retain its polish altogether or for a much longer time.

Both these experiments depend for their explanation upon the fact that the fluids in the corpse rapidly pass off into the atmosphere, and, therefore, in the first case, there is no

serum to form a blister, and, in the second, comparatively little moisture to tarnish the steel.

THE EYE TEST.

The tincture of belladonna (deadly nightshade) has the curious power, when a few drops of it are applied to the eye during life, to cause an enlargement of the pupil, owing to the production of a contraction in the muscles which surround it. But after the extinction of life, the muscles do not respond to this stimulant, and therefore when it is applied and no effect is produced, we may conclude actual death has taken place.

THE EYE SPOT.

Several hours after death, if the eye is closely examined, it will be found to present a peculiar discoloration, never witnessed during life. It appears in the white of the eye, on the outer side of the pupil, as a dark spot. It then shows itself nearer and nearer the inner corner, draws closer to the centre of the organ, and at last forms an oblong rounded spot on the lower convexity of the eye. When present, it may be regarded as an absolute proof of death.

This, too, is to be explained in the same manner as the first two tests we have mentioned. The outer coat of the eye drying after death more rapidly where it is exposed to the air, and no longer receiving the fresh supply of moisture with which it was fed during

life, becomes transparent, and the dark internal coat (choroid) can be more or less distinctly seen through it.

DECOMPOSITION.

Finally, the absolute and indisputable sign of death is *decomposition.* This first manifests itself by a discoloration of the surface on the stomach, and by a peculiar and unmistakable odor. It sets in at various periods, from a few hours to many days, depending upon the temperature, the disease which carried the individual off, and the surroundings.

CHAPTER XI.

THE DISPOSAL OF THE DEAD.

CONTENTS.

The mortal remains—The care of the corpse—The rigidity of death—How long a body should be kept—How to preserve a body: By cold—By the external use of disinfectants—By injection—By drying—By embalming—Can contagious diseases be caught from corpses?—The material for coffins—Cemeteries and their locations—Poisonous exhalations from cemeteries—Burning the dead.

THE mortal remains of our departed friends demand our cares as the last and sorrowing tributes to the qualities for which we have loved and admired them. The duty is one we owe ourselves as well as them. And we should dispose of the dead in that manner most consonant to their wishes while in life, and consistent with the well-being of survivors.

The customs of countries have singularly differed in this respect, and there is still a wide diversity of opinion among refined minds as to the disposition of the bodies of the departed.

The rude Indians of the interior of Brazil lay hold of the corpse the moment life has departed, and hurry with it to the nearest stream, into whose sluggish current they toss it, and return home. All reference

to the deceased is forbidden and even his name not mentioned.

On the other hand, the Chinese preserve the bodies of their deceased parents in their houses, regarding them as still associated with the soul, and as exerting a beneficent influence on the fortunes of the family.

The natives of Hindostan either burn the bodies of their relatives, or throw them into the sacred waters of the Ganges, to become the food of crocodiles and foul birds; while the Egyptians preserved with elaborate and extraordinary skill the bodies even of the lower animals.

Without discussing further the immense variety of modes of sepulchre which have prevailed, we shall give our attention to a number of practical points in reference to burials, cemeteries, and the disposal of remains as usual in this country.

And first as to

THE CARE OF THE CORPSE.

When the last breath has left the body, it becomes the duty of the attendant to compose the features of the corpse, and to lay it in a calm and decent position of repose. The eyes should be closed by bringing down the upper lids and holding them down for a minute or two. The lower jaw, which usually drops, should be closed and held in place by a bandage passing around the chin and crown of the head. The limbs should be straightened, and the corpse laid on the back, the head somewhat elevated.

Frequently discharges of froth or of a bloody fluid pass from the mouth or nose at the moment of death. These stains should be wiped away, and, if necessary, the apertures can be plugged with cotton.

The special duties of the undertaker we need not here detail. Suffice it to say that the body should be thoroughly washed, the animal heat allowed to pass away on a "cooling board," and the burial garments be neatly adjusted. In case of adult males, the face should be shaven about ten or twelve hours after death.

A curious belief exists among many that the beard and the nails continue to grow for a day or two after death. This notion, which seems supported by facts, rests on a misapprehension. The flesh contracts around and from the hairs of the beard and the nails, and they thus become more prominent, but it is not an actual growth. For this reason the shaving should be deferred for several hours.

THE RIGIDITY OF DEATH.

The corpse is said to "lie stiff in death." The muscles are rigid, the expression fixed, the joints immovable. The cause of this condition is not yet fully understood even by scientific men.

It usually begins from six to eighteen hours after death, and lasts from twenty-four to thirty-six hours, when it gradually disappears. It varies, however, very materially, both in the rapidity of its onset and the length of its duration; nor is it precisely known on what these differences depend.

Army surgeons have noticed that soldiers instantaneously killed on the battle-field often become stiff instantly, their features retaining perfectly the mental expressions on their faces when struck by the shot, and even their postures being preserved. In the recent Franco-German war, a Frenchman was found on the battle-field of Sedan, twenty-four hours after death, who had been killed by a grenade. A cup was still held delicately between the thumb and finger of one hand so as just to touch the lower lip, while the entire skull and face except the lower jaw had been carried away by the grenade. A German was found with the photograph of his wife or sweetheart raised in his hand so that he might take a last look at the moment that a fatal ball destroyed his life.

On the other hand, it is asserted by some physicians that this rigidity does not occur at all in many cases of death-stroke of lightning; and also when persons die from excess of strong emotions.

Forcible extension will destroy the rigidity. But if the extension is used before it is complete, the muscle may again become rigid.

As a rule, as the natural warmth passes away from the body, the rigidity sets in; and as the rigidity gradually disappears, the signs of decomposition show themselves.

HOW LONG A BODY SHOULD BE KEPT.

The question is often asked how long a body can be kept before it becomes offensive.

The answer of course varies with the season of the year, the disease which proved fatal, and the weather. Cold weather, chronic diseases, and a dry air are favorable for the preservation of the remains; while heat, moisture, and rapidly fatal maladies all hasten the change of decomposition. Generally one or two days in summer, and three or four days in winter, are as long as a corpse should be kept, unless special means of preventing putrefaction are employed.

The necessity of retaining the remains unburied for much longer periods than this constantly arises, either for the sake of transporting them home, or sending for relatives, or preparing for the funeral ceremonies. Hence, an important branch of our subject is to discuss the most convenient, cheap, and effective means of preserving bodies.

HOW TO PRESERVE A BODY.

The methods which have been adopted at various times for the preservation of corpses are very various. Some aim at temporary purposes merely, while in others the ambition of the embalmer is extended to guaranteeing conservation beyond the utmost term of time, and to the "crack of doom" itself.

The simplest means is

BY COLD.

The ice-box is very generally used in this country for arresting change for some days. It answers its

purpose very well for about a week, but beyond that time is not a satisfactory expedient.

Could continued cold of a severe degree—below zero, for example—be constantly applied, the body would remain stiff as a statue and perfectly free from change of any kind for an indefinite period.

Strange examples of this are on record. Many years ago six Dutch sailors were left on the arctic island of Spitzbergen, to pass the winter there. As early as the ice-fields broke the following summer, a ship visited the island to inquire of their fate. They found them all dead, each remaining in the position in which he died, stark and frozen. One still held a pen and a note-book in his hand, and had recorded that he was the last of the six, and felt that he was about to follow their fate. Nearly three months had elapsed since his hand had written those words and then had been overcome by the dreadful cold.

The story of the ship discovered drifting in the Arctic Sea, with every soul frozen to death on board, yet remaining in the postures of their customary duties, although not veracious, expresses what might very possibly occur.

BY THE EXTERNAL USE OF DISINFECTANTS.

A more convenient and cheaper method is to use externally some powerful disinfectants. Of these, we recommend two, as having been thoroughly tested, and capable of preserving the remains, under ordinary circumstances, for several weeks.

The first is *sulphate of zinc.* One part of this substance is to be mingled with two parts of sawdust, and a thin layer placed over the whole body.

The second is *carbolic acid.* Clothes can be wrung out in this and the body wrapped in them, or sawdust moistened with the acid can be sprinkled over it in a thin layer. In either case, the whole surface must be thoroughly protected.

BY INJECTION.

During the late war, the bodies of the fallen on the battle-field, which were sent home, were usually preserved by injecting into the bloodvessels a solution of a powerful disinfectant. By this means they could be kept for two months without material change. The same plan is that generally adopted to preserve those used in dissecting-rooms. A solution of the "arseniate of soda," or of the chloride of zinc, is that generally used.

Inasmuch as to carry out this method successfully demands anatomical knowledge and considerable expertness, we need not enter into particulars.

BY DRYING.

It is astonishing how much of our bodies consists of water. And this amount of water it is which more than any other element hastens its decay.

The grave-digger in Shakspeare's play of Hamlet had learned this fact. He asserted that a tanner's body

would last nine years; and when Hamlet asks, "Why he more than another?" the grim joker replies: "Why, sir, his hide is so tanned with his trade that he will keep out water a great while; and your water is a sore decayer of your dead body."

Several nations have preserved their dead by drying the bodies very slowly so as to extract all the moisture. The ancient inhabitants of the island of Teneriffe had this custom, and Alexander von Humboldt, who obtained several of these desiccated remains, states that the body of an adult male, thoroughly dried, weighed only eight or nine pounds!

Some monasteries in the Levant continue this strange procedure. When one of the monks dies, they take his corpse, and, having thoroughly desiccated it, dress it in the usual robes of the order, and place it in a niche in the cellar. Long rows of the deceased members of the order can there be seen, forming a startling and curious spectacle.

BY EMBALMING.

The earliest account that we have of this art is found in the last chapter of *Genesis*, where we are told that Joseph commanded his servants and physicians to embalm his father. From the manner in which it is recorded, it was evidently a usual occurrence, in operation every day. In the 26th verse of the same chapter, Joseph's death and manner of burial are recorded; he was embalmed and put in a coffin in Egypt.

In *Chronicles* it is also mentioned that Asa's body was laid in a bed filled with sweet odors and divers kinds of spices prepared by the apothecaries' art. Also, in the New Testament there are passages showing that it was considered an imperative duty to embalm the dead; for, when the woman was rebuked for pouring the ointment of spikenard on the Saviour's head, he said: "Let her alone; she hath wrought a good work on me; she hath done what she could; she hath come aforehand to anoint my body to the burying." Nicodemus is said to have brought a hundred pounds of aloes and myrrh to embalm the body of Jesus. The quantity has been exclaimed against by certain Jews, as being enough for fifty bodies; but Josephus tells us that at the funeral of Herod there were five hundred spice bearers, and at that of Gamaliel, eighty pounds of spice were used.

Dogs, cats, wolves, birds, and crocodiles appear to have been subjected to the same process in Egypt, to preserve them; at all events, they are found in vast numbers in an admirable state of preservation.

We must bear in mind that it never rains in that region. There is neither record nor tradition that it ever rained even as low down the river as the present city of Cairo. Occasionally there are slight showers at Alexandria, which is on the border of the Mediterranean; and at Cairo there is sometimes a foggy condition of the atmosphere, slightly damp, but nothing more.

Although the Bedouin Arabs have been pillaging the mummy pits for more than six hundred years, for

rings, sandals, caps, jewelry, sarcophagi, and curious marks of ancient art, which they are constantly bringing to light, there are still mummies enough remaining to give them employment, in the same manner, for a thousand years to come. It is said by those who have been in Egypt since the cars commenced running on the newly constructed railroad, that mummies have been actually used as fuel for the locomotives; but we hope this is an error.

The process used by the Egyptians is tolerably accurately known, but is of comparatively little interest at the present day. The climate more than the spices preserved the relics of the ancient dwellers by the Nile.

CAN CONTAGIOUS DISEASES BE CAUGHT FROM CORPSES?

When asked to a funeral in this country, it is customary to enter the room where the corpse is laid out, and approach it in order to take a last look at the mortal features of a departed friend.

As so many diseases are communicated directly from one person to another, it becomes of great moment to decide whether the poison of a contagious disease can be disseminated by the corpse of one who has succumbed to it. The answer to this question is not unanimously given. But, without entering into arguments, we must express our firm and full conviction that contagious diseases *can be*, and frequently *are*, disseminated by corpses, and especially by the habit at funerals which we have just adverted to. We believe the custom should be dispensed with whenever

the disease is communicable; and no secrecy on this point should be attempted to be maintained.

Persons should insert in the funeral notice the cause of death; and it is imprudent for any one to attend a funeral when he is ignorant of the malady of which the deceased has died.

Bodies of those dying of contagious disease should not be transported on public thoroughfares. And in every respect the greatest precautions should be observed that the dead do not contaminate the living.

For this reason, as well as others, we unqualifiedly condemn funeral feasts, and "wakes." These are nowadays rarely the scenes of festivity, maudlin grief, and actual drunkenness which they frequently were a generation ago. But any necessity at all of "funeral baked meats," or still less of alcoholic drinks, does not now exist, except in remote country localities.

They contribute in a marked manner to spread disease. As late as the current year (1871), the mayor of Belfast, Ireland, has had occasion to remonstrate with the inhabitants of that city, and to point out to them that the ravages of the smallpox had been vastly increased by the custom of friends and neighbors assembling at the funeral of those who had died of that disease.

An English physician reports that at the last visitation of the cholera a woman died of the disease in a populous district of London. Her husband invited a large number of persons to her wake, and distributed freely intoxicating drinks. The consequence was that in a few weeks nearly one hundred and fifty cases of

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cholera occurred among the participants in the affair, many of them fatal.

THE MATERIAL FOR COFFINS.

The usual material of which coffins are constructed is wood, and probably it is superior to anything else. Leaden coffins were in former years quite popular among the wealthy classes, but they are open to the objection that, being air-tight, the gases which are generated during the decay of the body occasionally exert enough force to cause an explosion, and burst open the sides with a noise said to be equal to that of a small piece of artillery!

Such incidents have doubtless been the occasional source of some of the ghastly stories which are connected with disturbing the remains of the dead.

The metallic caskets now manufactured with great elegance guard against similar accidents by providing for the escape of the gases.

CEMETERIES AND THEIR LOCATION.

The word "Cemetery" is of Greek origin, and means a "resting" or "sleeping place." And so it is in fact the spot where sooner or later we must all be taken and consigned to the eternal sleeps and undisturbed rest of Death. Happy we, if we can go

> "As one
> Who folds the drapery of his couch about him,
> And lies down to pleasant dreams."

But still more beautiful than this word of foreign lineage is that term which our own ancestors used to apply to the burial-ground—"God's acre" or field. As our American poet, Longfellow, has so nobly sung:—

"I like that ancient Saxon phrase, which calls
The burial-ground God's acre! It is just:
It consecrates each grave within its walls,
And breathes a blessing o'er the sleeping dust.

"Into its furrows shall we all be cast,
In the sure faith that we shall rise again
At the great harvest, when the archangel's blast
Shall winnow, like a fan, the chaff and grain.

"Then shall the good stand in immortal bloom
In the fair gardens of that second birth;
And each bright blossom mingle its perfume,
With that of flowers which never bloomed on earth."

These glorious associations, which to the Christian rob the grave of its terror and dispel the gloomy hopelessness which to the heathen and the infidel enshroud the future, should lead him to surround the burial-places of the dead with pleasant sights and beautiful works of art. A graveyard should attract him rather than repel, and it should be so situated and governed by wise regulations as to render it an agreeable and desirable spot.

This *can never be* if cemeteries are located in cities. The churchyards of cities are foul pest holes, planted with bodies over and over again, breeding poisonous emanations, sickening thousands, and condemned by every law of decency and health. The descriptions of the London churchyards, before it was forbidden to

inter any more in them, are the most horrible and revolting revelations on the pages of sanitary history.

The energy with which a few devoted men assailed the plan of "intra-mural interment," or interment within cities, is most deserving of praise, and the services they have rendered are most meritorious. No village and no town should have a burial-place within its inhabited precincts.

A site for a cemetery should be chosen from half a mile to a mile distant from the town, capable of being improved in accordance with the laws of landscape gardening. The drainage should be sufficient to carry off both the surface and the subsoil water. The soil itself should be, by preference, a light gravelly loam, or clay to the depth of ten feet. The earth, when clayey (aluminous), is an excellent disinfectant, and the dryer the soil the more slowly will the changes of decomposition take place.

POISONOUS EXHALATIONS FROM CEMETERIES.

The gases which exhale from decaying bodies are poisonous, and in repeated instances have brought about disastrous results on those exposed to them. This was often the case when, as in old times, bodies were deposited in vaults beneath the floors of churches.

In one instance in the last century in France, there was a company of one hundred and twenty people assembled in a church at a time an old vault was opened. The stench was nauseous and unbearable, and many were sickened by it at once. They all

hastened from the church, but only six of the one hundred and twenty escaped severe illness, and many of them died, among the number the curate and the vicar of the parish.

The alleged immunity of grave-diggers is no refutation of the poisonous character of these gases. This class of workmen are rarely robust and rarely long-lived. Moreover, as in countless other examples, the system, through long custom, has become habituated to these vapors, and can withstand them better than those unaccustomed to them.

It is, therefore, essential to the healthfulness of a cemetery that these vapors be neutralized. This can be done by adopting several precautions.

In the first place, the bodies should be buried at a considerable depth, say eight or ten feet, in a clayey soil which is dry and well drained. Second, burials in the same grave should be positively prohibited, and no part of the ground should be used twice, no matter how much time has intervened since the earlier burials. Broad walks and drives with subsoil drainage should be laid out between the lots.

Experience has proven that an abundance of vegetable life absorbs and neutralizes the exhalations of graveyards. They should be thickly planted, therefore, with trees and shrubs, and the open spots well set with varieties of rich grass. Deciduous trees of rapid growth are to be preferred to the slow-growing evergreens, hollies, and cypresses so generally seen. Moreover, there is no need to make a cemetery gloomy. Such an aspect is inconsistent with a firm

faith in an after-life; it is a relic of darker ages, when the gospel preached was, "Eat, drink, and be merry, for to-morrow ye die."

The country churchyards and the cemeteries of cities should be maintained in perfect order, and all should emulate to show a similar solicitude about these cities of the dead to that which has given such renown for beauty to those famous grounds, Mount Auburn, Greenwood, and Laurel Hill.

BURNING THE DEAD.

During the bloody battles between the French and German forces in the war of 1870, so many thousands fell, that the capacity of the sanitary corps was overtasked, and it was impossible to bury the dead. Some surgeons, therefore, proposed to burn the bodies, and the project was successfully carried out.

The ancient Romans were wont to dispose of their dead in this manner. The corpse was placed upon a funeral pile and consumed; the ashes were carefully collected and placed in a vase, which was sealed and preserved with religious solicitude.

In like manner the Scandinavians of a later day treated the bodies of their Vikings. The sea-rover was placed in his boat, and wood piled over it. A torch was applied, and the ashes of the pile scattered on the waters or covered with a mound of earth.

To many minds such a disposition of the body is far more agreeable to contemplate than to have it consigned to the damp earth, and pass through the

loathsome stages of decomposition. The poet Shelley left an earnest request that his corpse should be burned. This injunction was carried out under the supervision of his friends Lord Byron and Mr. Trelawney, and the latter has left a minute and very disagreeable narrative of the method adopted.

It requires an intense and prolonged heat to consume a body, and it is not easily done by a wood fire. Possibly this ancient custom, which certainly has many sanitary arguments in its favor, may come again into general adoption. But at present the suggestion would probably not meet with a favorable reception.

The tendency of the public mind at present is rather to seek some chemical means of easy application to preserve the remains from decay. Doubtless chemistry will easily respond to such interrogations, but of what avail is it to save this wretched body when the spirit has departed? Wiser than these, the grim old philosopher Diogenes, when asked what should be done with his body after death, replied, "Cast it into the gutter." "Why," exclaimed his shocked friends, "the dogs will devour it." "Then put a stick in its hands, to drive them away." "But it cannot use a stick." "If it cannot do that," was the triumphant rejoinder of the sage, "I care not for it."

The Christian, however, needs not the refuge of a brutal stoicism. He has learned that the future of the soul, not of the body, is that which concerns him; and exclaims, with one of England's gifted bards:—

"Why should this worthless tenement endure
If its undying guest be lost forever?
Oh let us keep the soul embalmed and pure
In living virtue, that, when both must sever,
Although corruption may our frame consume,
The immortal spirit in the skies may bloom."

PART II.

THE NURSING OF THE SICK.

INTRODUCTORY.

THE IMPORTANCE AND DIVISIONS OF THE SUBJECT.

Nursing a matter of national concern—The knowledge needed by a nurse—The divisions of the subject.

HITHERTO we have occupied the attention of our reader with those principles of hygiene the knowledge and the application of which are best calculated to preserve health and secure long life. We now come to the second part of our work, in which we will endeavor to make plain the principles of nursing—the art of properly caring for the sick.

THE SUBJECT OF NATIONAL INTEREST.

The importance of our theme we feel we cannot overrate. In the language of the distinguished Professor of Surgery in the Jefferson Medical College, Dr. Gross—

"The subject of nursing possesses a deep national

interest. It personally concerns every human being, of whatever age, rank, or condition in life—alike the rich man in his palatial residence, the mechanic in his cottage, and the peasant in his humble hovel. All are alike intimately interested in its faithful administration and in its final issue. It is perhaps fortunate that the mortality occasioned by bad nursing cannot be properly estimated by those more immediately affected by it, as a knowledge of it would entail upon them an immeasurable amount of misery and mental anguish. Mankind look with horror upon the destruction of human life upon the battle-field and during the prevalence of epidemics, as cholera, scarlet fever, and smallpox, because its appalling character is everywhere patent to the public eye; every one sees and hears and talks about it; but few persons can form any adequate conception of the vast number of human beings who are daily, nay, hourly, sacrificed upon the unhallowed altar under consideration."

THE KNOWLEDGE REQUIRED FOR GOOD NURSING.

After pointing out the peculiar fitness of women for the vocation of nursing, Prof. Gross enumerates among the qualifications of a good nurse the following educational necessities:—

1. A knowledge of the principles of hygiene, especially of ventilation, clean linen, temperature, and the nature and use of disinfectants.

2. An acquaintance with the methods of preparing food and drink.

3. Information in regard to the administration of medicines, and familiarity with the doses of the more common medicines employed in the treatment of disease.

4. Instruction in the application of leeches, blisters, bandages, and other dressings, as poultices, ointments, and lotions.

5. Training in the art of making up beds, changing sheets, and handling patients exhausted by disease and injury.

This information it has been our purpose to place in the hands of every mother and daughter who peruses this book. The first requisite for good nursing, just named, "a knowledge of the principles of hygiene, especially of ventilation, clean linen, temperature, and the nature and use of disinfectants," has been dwelt upon at length in the first part of our treatise, now brought to a close. We shall endeavor, in this the second division of our work, to lay before the reader precise and reliable information in regard to the other requisites for good nursing above enumerated.

THE DIVISIONS OF OUR SUBJECT.

The subject of nursing we shall, for convenience of presentation and reference, divide as follows: First, The nursing of children; Second, Of adults; Third, Cookery for the sick; Fourth, The administration and

external application of medicines; Fifth, Accidents in the sick-room; Sixth, Notes and matters on nursing; Seventh, The care of the aged; Eighth, The care of the idiot and imbecile; Ninth, The care of the inebriate. We shall aim to group under these various heads those principal facts in regard to the care of the sick and feeble, which every woman should know.

CHAPTER I.

THE NURSING OF CHILDREN.

SECTION I. THE RECOGNITION OF DISEASE IN CHILDREN. Distinction between slight ailments and actual diseases—Signs of disease in childhood: Position and movements; Loss of flesh; Expression of the face; Dislike of light and noise; Manner of crying; Character of the cough; Changes in the pulse; Nature and seat of pain; Heat of skin; Disturbed sleep; Appearance of the tongue; Manner of drinking; The appetite; The belly; Vomiting; The passages; Convulsions.

SECTION II. THE CHAMBER OF THE SICK CHILD. Order and cleanliness—Ventilation—Quietness—Amount of light—Temperature—Visitors.

SECTION III. THE PERSON OF THE SICK CHILD. Cleanliness—Bathing: How to bathe a sick child; Cold, warm, hot, and medicated baths—The linen—Bed and bedding.

SECTION IV. THE FOOD AND DRINKS OF THE SICK CHILD. The amount of the drinks—The temperature of the drinks—Diet drinks: Barley-water; Oatmeal gruel; Rice-water; Toast-water; Sour drinks; Milk; Tea; Coffee—Dietetic preparations: Arrowroot pap; Arrowroot pap with milk; Tapioca; Sago; Panada; Pap of unbolted flour; Pap of boiled flour; Gelatine food; Dr. Mercí's food for children; Arrowroot and beef-tea; Prof. Liebig's soup; Raw meat; Prof. Trousseau's receipt—Attention to giving food—Quantity of food and number of meals.

SECTION V. THE RECOVERY OF THE SICK CHILD. Neglect of the convalescent—Period of confinement to the bed and room—Diet of the convalescent—Exercise during convalescence—When to return to school.

TO learn how to properly care for her child when sick, should be an object dear to the heart of every mother. It is not enough that she should seek for her little one when stricken by disease the best

medical skill within her reach. The physician can only fight half the battle; if he be unaided by good nursing, or thwarted by badly-directed though well-intentioned efforts, in vain will be his wisest counsels, his best skill. Many a child has died who might have been saved, had the mother been able intelligently to second the efforts of the physician. Many a child will be saved in the future if mothers can be awakened to the importance of our present theme, and induced to lay up as a precious treasure that knowledge upon which, as upon a last thread, may some day hang the very lives of those nearest and dearest to them.

I. The Recognition of Disease in Children.

This is not always an easy task, as numerous anxious mothers causelessly alarmed, numerous wearied physicians unnecessarily called from their needed rest, and numberless deaths occasioned by the want of a timely recognition of the existence of disease, will testify. We shall endeavor to point out some of the most prominent signs of disease, which every mother is capable of recognizing. In the first place, we must try to draw the line of

DISTINCTION BETWEEN SLIGHT AILMENTS AND ACTUAL DISEASES.

This distinction is, doubtless, often a difficult and delicate one. Still, we do not deem it beyond the

powers of a well-informed and observant mother. If she have any doubt as to the correctness of her opinion, she should call in the family physician, in order that the child may have that early medical care so important at the outset of a serious malady. There are certain signs and symptoms, easily noticed, which may enable the parent to tell a trifling indisposition from a threatened illness. Among these we shall mention—

1. THE RAPIDITY OF THE ATTACK.

The slight disorders of the health, to which all children are liable, have no precursory symptoms, nor any slow convalescence—simple disturbances of the system, due to passing impressions, they quickly come and go. Serious diseases, on the contrary, are preceded by several days of depression and languor; the child is unwilling to play, it becomes fretful and irritable, it seeks of its own accord to lie down, its appetite is disordered, it sleeps badly, the face is more or less dejected, the skin is pale, the eyes are encircled with dark borders, and there is some loss of flesh. When these signs exist, all or many of them, and they persist, there is reason to fear the invasion of a serious disease.

2. LOSS OF FLESH.

Children lose and gain flesh with great rapidity. With them roundness of limb and fulness of face have an important signification. The careful mother will

not content herself with the merely superficial assurance of the good condition of her child furnished by the eye; she will consult the scales. A child ought to be weighed at least once a month, and oftener when the health appears to be threatened. A well-nourished child ought not only to keep up its weight, but to increase it; when the contrary is the case, it is an indication of a tendency to disease, which the physician ought to investigate and remedy. Ordinarily a falling off in flesh with children shows either that some acute affection is about to make its appearance, or that some chronic disease has already commenced to fasten itself upon the constitution.

3. CHANGE IN THE CHARACTER AND HABITS.

The least changes in the disposition of a child are readily noticed, for that concealment of the feelings, so common in adult life, is unknown in infancy and early childhood. Both slight indisposition and actual disease bring with them alterations in the temper and character; but the first shows itself by an exacting and irritable humor, the latter by indifference and torpitude. This statement may not be without exception, but it is very general. A child merely indisposed is ill-tempered and troublesome, a child really sick is dejected and apathetic. Hence, mothers with good reason gladly notice when their sick children become exacting and tormenting—it is an undoubted sign of returning health. The child which is only *out of sorts*, frets itself because of its distemper;

it wishes to pursue its ordinary life, to play, to run, to eat as usual, but is unable to do so with comfort. It revolts, therefore, against itself, cries without cause, calls for and rejects the same object, and passes from one extreme to the other. The *sick* child, on the contrary, is more astonished, as it were, than irritated; it desires repose rather than caresses, its little face is neither lighted with a smile nor darkened by a frown, it has an air full of care, as if filled with the presentiment of coming suffering. Gayety is the natural condition of childhood. Transient ill-health hides for a moment, but does not entirely do away with, this natural cheerfulness, which breaks forth now and then in the smile which follows the tear. Any evidence of playfulness is reassuring, its entire absence ought to inspire legitimate anxiety. A sad child is a mournful abnormality. This sadness is more serious if its chagrin and cries are unaccompanied by tears. *A dry eye, a grave disease*, is an aphorism, the justice of which is rarely at fault.

4. IDLENESS AND LISTLESSNESS.

Active motion is a physiological need with the child. In health we find it in a state of constant activity, never resting for a moment while awake. There is, then, a cause for anxiety when it seems listless and indisposed to exertion, seeking repose rather than action. This alarming tranquillity is the more menacing in proportion as the child may be naturally lively and active, filling the house with its endless and tur-

bulent gayety. This unusual apathy is, above all, a serious sign of some approaching disorder of the brain. When a child, however well it may look, manifests a distaste for running about and playing, when it willingly remains for entire hours seated in its little chair, watching with indifference the sports of its playmates, it is menaced with an illness near at hand.

Fever, cough, vomiting, and diarrhœa are present in both slight and serious ailments. Their characters are different, however; we shall therefore consider them in detail presently.

In any observant family, by the aid of the distinctions we have just laid down, it will be ordinarily easy to tell those disorders which need merely home care from those which call imperiously for the skilled practitioner of the art of healing. Summon, therefore, without delay the family physician when the signs we have mentioned justify alarm, and thus put the responsibility of treatment in its proper place. When, however, the trouble is evidently only a passing indisposition, quiet, an even, properly regulated temperature, and attention to the diet, will usually restore the health. Let every mother bear in mind that many a serious illness has had its origin in a slight disorder which has been *neglected*. An enforced rest, a protection from exposure, and a restricted, selected diet would at first have been all that was necessary: the omission of these cares, so readily attended to, has compromised all, and the doctor has been obliged to intervene, when it was so easy to have prevented the necessity for calling him in.

We will now pass to the consideration, with some minuteness, of

THE SIGNS OF DISEASE IN CHILDHOOD.

These signs vary of course, both with the age of the child and with the nature of the malady. We shall first dwell upon the meaning of the various symptoms which show themselves in children, and then note the special signs which indicate disease of the brain, lungs, stomach, etc.

First in regard to

THE POSITION AND MOVEMENTS OF A SICK CHILD.

The attitude and gestures of the child, particularly the position it takes when it lies down, afford useful information as to the nature and extent of the malady. Healthy children will fall asleep in any posture, and rest quietly and uninterruptedly in that manner, ordinarily upon the side, but frequently upon the back. How changed is the sick child in this respect. So far from resting quietly, the little one tosses about impatiently. The sleep is no longer sound and comfortable, but is agitated and broken by starts and cries.

The *nature of the gestures* deserves attention. Sudden twitches and starts denote attacks of sharp pain such as occur in colic, shooting headache, and stitches in the side. The drawing up and throwing down of the legs, with cries, are usually evidences of the

suffering produced by wind in the bowels, and cease so soon as the wind is passed off. The movements of the hands will often show the seat of pain. In headache or earache the hand is constantly being carried to the head or ear. The pain caused by teething leads to the putting of the hands into the mouth; when there is irritation about the brain, they are apt to pull at the hair; in case of worms, they bore and pick at the nose or fundament; in croup, they rub the neck; and, in attacks of colic, older children press with both hands upon the belly. The occasional rolling of the head from side to side, although present in certain diseases of the brain, does not necessarily denote any serious trouble, and ought not, therefore, to excite undue alarm.

Extreme restlessness, a constant desire to pass from the arms to the bed and from the bed to the arms, or incessant tossing about from side to side of the bed, is an unfavorable sign in many grave affections.

The *position* which the child prefers and assumes furnishes a guide to the nature of the disease. In catarrh of the chest and inflammation of the lungs, the child wishes to be propped up high in the bed, to an almost sitting posture, or to be supported, when very young, in the arms of the nurse, with the head and shoulders raised. If placed flat down in the bed, cradle, or lap, it will show signs of uneasiness and discomfort. In these cases, the infant will often prefer to be held in the arms, with its head hanging over the shoulder of the nurse. In inflammation of one lung, the child will desire to lie upon the back or

upon the affected side, and will at once turn over if it be laid upon the unaffected side. In many diseases of the bowels, the inferior extremities are drawn up, the legs being bent upon the thighs, the knees raised towards the chest, and the child showing great unwillingness to straighten out its limbs. In cases of scrofulous inflammation of the eyes, the child will be found to lie upon its face; and will often take the same position when suffering from some forms of headache. Children wasting away from defect of nourishment will frequently be noticed to keep their thumbs drawn inwards and their hands firmly closed. Naturally, in early life, a healthy child sleeps with its arms somewhat raised, its hands lying upon the chest and approaching the chin. In the exhaustion produced by debilitating diseases, such as diarrhœa, the arms will be found resting by the side, while, on the contrary, in certain brain diseases the hands are extended over the head or thrown against the forehead.

LOSS OF FLESH.

This is the next sign of disease in childhood, which we will consider. The rapidity with which emaciation takes place varies with the disease. In acute, severe affections, the loss of flesh is very rapid; in slow, long-standing maladies, it is gradual, but is oftener carried on to a greater extent, so as to reduce the child's body and limbs to little more than a framework of bone with a loose covering of skin. The *inner surfaces of the thighs* are the best places in which

to seek for the earliest signs of emaciation. A short illness, a diarrhœa of only a few hours' duration, will render these naturally firm, tense surfaces relaxed and soft. When the disease is at all advanced, flabby folds displace here the former symmetrical roundness of the parts. So soon as convalescence begins, returning fleshiness is also first shown on the inner surfaces of the thighs, which recover their shape and solidity with surprising quickness.

EXPRESSION OF THE FACE.

In very young children, the change of expression which takes place in the countenance, under the influence of disease, is marked, and often affords valuable aid in distinguishing the nature of the affection. In profuse diarrhœa, for instance, and particularly in cholera, the face of an infant will change so much that, in the short space of twenty-four hours after the attack, it can scarcely be recognized.

At the outset of illness, the countenance becomes dull and heavy; it no longer lights up on the approach of mother, father, or playmate. Flushing of the face is also an early accompaniment of some affections. If any of these changes in the appearance of the child are persistent, and attended with disordered bowels and disturbed sleep, they call for immediate medical attention, for fear a serious ailment may obtain too strong a foothold.

Every disease, to some extent, gives to the face its own peculiar expression, and, by the part of the face

chiefly altered, the experienced eye may distinguish, to a great degree, the organs diseased. Thus changes in the upper part of the face, the forehead, and eyes, denote affections of the brain; in the middle of the face, particularly the nostrils, affections of the chest; in the lower part of the face, the mouth, and lips, affections of the bowels and abdomen. It is often difficult, however, for a physician to tell the exact disease by a mere inspection of the face. But there is one sign readily noticed, which points with great certainty to inflammatory diseases of the lungs, namely, the increased movements of the sides of the nostrils, their rapid rising with each breath.

There is no mother who is not familiar with the heavy look about the eyes to which we have already referred as a precursor of sickness. Upon observing it, she is accustomed to say the child does not "look well." The manner in which the eyelids are raised furnishes a valuable indication of weakness. The appearance of crossing of the eyes is an evidence of approaching brain disease. Of course, this remark does not apply to cases in which squinting has always existed, nor to those instances in which it is acquired by the imitation of those who have this deformity. The half-opened eye during sleep, which so often alarms the mother, is not necessarily denotative of any trouble. Most nurses will attribute it at once to worms. It is frequently seen when there are no worms present. An overloaded stomach, or wind in the bowels, will occasion it. It is often merely an indication that the child is not soundly asleep, but only drowsy. The rolling

up of the eyes, which can then be seen, is natural, it always takes place during sleep, but the fact is usually hidden by the completely closed lids.

From the expression of the lips and mouth much information may be gathered. Thus, when the lips are slightly parted and pale, and the mouth surrounded with a white circle, the child is sick at the stomach and probably about to vomit. When, however, the lips are compressed, and the nose pinched and sharp, while the mouth is surrounded by this white circle, then we may know the child is suffering pain.

Pain is always indicated by the countenance, but the exact seat of the pain cannot always be told from the features. It has been said that pain in the head occasions contraction of the eyebrows; pain in the chest, sharpness of the nostrils; and pain in the bowels, an elevation of the upper lip. But pain anywhere is very apt to distort the whole face, and it is only by taking into account other signs that we are able to locate the site of the suffering.

CHANGES IN THE COLOR OF THE FACE

Are interesting and instructive. Fevers are ushered in with a face suffused and deeply red. When the attack is very severe and sudden, the face may be paler than usual. Great whiteness and glossiness of the skin in the latter stages of inflammatory diseases of the lungs and throat, is an unfavorable sign. In disorders of the digestive organs, the face assumes a sallow hue; in affections of the liver, it becomes yellow;

in long-standing disease, it takes a waxy pallor which is very striking; in some diseases of the lungs and heart, it appears bluish or livid. The intense blueness, not only of the face, but of the whole surface, which is sometimes presented by an infant from birth—"a blue baby," as it is called—is owing to an imperfection of one of the valves of the heart, which permits of the mixture of the blue venous with the red arterial blood. Exhaustion is revealed by coolness and want of color in the face, and by a livid hue of the lips and eyelids.

DISLIKE OF LIGHT AND NOISE.

The mother or nurse ought carefully to watch for any signs of undue sensitiveness to light or noise on the part of the sick child, and, if any be noticed, report the fact to the attending physician. If a child be old enough, it will complain of the brightness of the room, or of the usual noises about the house. If too young to mention its annoyance, its manner of shutting the eyes and turning away from the light, or its painful starts on hearing the slamming of a door, or even a slighter noise, one which in health would not excite attention, will indicate the increased sensibility of the senses of sight and hearing.

One of the first evidences of the disease known as *scrofulous ophthalmia*, a peculiar inflammation of the eyes occurring in scrofulous children, is an excessive intolerance of light, the child running to its mother and hiding the head in her lap. We need scarcely add that this conduct of a child should lead without

loss of time to an examination of the eyes by a competent physician.

THE CRY OF THE SICK CHILD.

The cry is the language of the child. By this means it expresses its wants and its sufferings. The cry varies greatly in character, and serves the experienced ear as an index to the nature and degree of the disease.

The tone of the cry is peculiar to each child, like the tone of the adult voice. But the manner in which the cry is uttered, and its pitch, are influenced by circumstances; and from this variation important conclusions may be drawn.

In *inflammatory affections of the lungs*, children never cry *loudly* nor *continuously;* but now and then, either after drawing a deeper breath than previously, or after a cough, they give a little half-suppressed cry, which they check before it is finished, because of the pain or want of breath it causes. The child is, therefore, unusually quiet, and loth to cry, in diseases of the lungs. It emits only a low, painful moan, excepting in pleurisy, when the cough, the moving of the child, or pressure on the inflamed side, will sometimes excite an outburst of shrill, highly pitched crying.

In *stomachache*, the cries of a young child are accompanied with twists and contortions of the body, and the cry itself is loud and passionate; it is not regular, but ceases for a few moments, and is then

resumed, the legs being drawn violently up to the stomach. As the pain passes off, the legs are relaxed and extended, and the child sobs itself to sleep. The fact that the crying precedes, attends, or follows a stool, also points to its being occasioned by some pain in the bowels.

In *disease of the brain*, the child utters short, sharp, piercing shrieks, and after each outcry relapses into its former drowsiness until again aroused by pain.

In *fevers*, children do not cry long, even though they may be distressed by much pain.

Earache is the cause of the most prolonged, obstinate, and violent crying, which persists in spite of all efforts to relieve the pain or divert the attention. This cry is readily distinguished from most others, by the length of time during which it lasts *without any intermission*. Next in persistency to the cry produced by the torture of earache, is that which attends *hunger*. The cause of violent crying difficult to explain may often be solved by placing the infant at the breast. Children also cry loudly and long when wounded or bruised, or when suffering from an abscess.

In affections of the upper air-passages the cry is hoarse, or may be suppressed altogether. In cases of great debility, also, the child is sometimes unable to utter a cry, although it may make the attempt.

The general irritability and fretfulness which frequently attend sickness or slight ill-health in children often manifest themselves in fits of crying, excited by moving, dressing, or even looking at the little one.

Crying of this description can usually be appeased by gentle care or amusing toys.

We have already spoken of the shedding of tears and the signification to be attached thereto. It must be recollected that the tears are not formed before the third month, so that before that age their absence is natural, and not a sign of any sort.

THE COUGH OF A SICK CHILD.

The cough of a child may merely denote some slight trouble, such, for instance, as a passing catarrh without fever, a transient ordinary cold, the presence of worms in the bowels, or the cutting of teeth, but it may also signal the approach of a serious disease. The character of the cough is an index to the nature of the disease.

In an *ordinary cold*, the cough is dry for the first twenty-four hours, and then becomes loose, the rattle of the phlegm in the upper air-passages being plainly heard. As a young child cannot spit, this being an art which even the American boy has to learn, the phlegm is raised into the mouth and swallowed. As the air-passage is cleared of the secretion in this way, the same object is attained as if the child expectorated in the manner of grown persons. In the ordinary cold of which we speak, the cough is free, loud, and without pain.

In an *inflammatory affection of the lungs*, the cough is attended with pain, distorts the features, and is low and smothered.

In *croup*, the cough, once heard by the mother, will

never be forgotten. Would that all mothers were capable of recognizing it at once, in order that they might in time take measures to avert this terrible and insidious disease of early life. The cough of croup has been compared to the bark of a dog; it is very hoarse, dry, loud, and metallic, and is made when the air is expelled from the lungs, in this respect differing from the cough of whooping-cough, which is made when the air is inhaled. A change in the voice accompanies the earliest stages of croup. At first hoarse, it becomes afterwards muffled, and finally almost extinguished. It must be borne in mind that there are two varieties of croup, the true and the false. The latter is a nervous affection of the upper part of the main air-passage, and never of itself causes death. It is distinguished from true croup by the following characteristics: it makes its appearance suddenly towards the middle of the night, may be in the midst of perfect health or during the course of an ordinary cold. Pale, nervous children, especially when teething, are more particularly liable to it. True croup, on the contrary, is attended with the formation of a membrane in the throat, and is a very dangerous affection. Fortunately it is much more rare than false croup. It is preceded by several days of ill-health and fever, with the changes in the voice, and the peculiar hoarse, hollow cough we have described.

In *measles*, the cough is ringing and often hoarse, but differs widely from that of croup. It is attended with a discharge from the nose, and with redness, almost a bloodshot condition, of the eyes, which are

filled with tears. The appearance of the eyes and nose is the most significant sign of the disease.

In whooping-cough, the peculiar cough which gives its name to the disease does not show itself until between three days and two weeks after the first appearance of the symptoms. Previous to this time the cough cannot be distinguished from that which is present during an ordinary cold. The characteristic long, jerking cough, interspersed with a loud, sucking, drawing in of the air, known as the "hoop," and ordinarily followed by vomiting, is known to every mother. When heard, it places beyond doubt the nature of the disease.

In *scrofula* there is commonly a short, dry cough, which is heard at intervals during the day and night.

Coughs of long duration are always dangerous. If they be accompanied with loss of flesh, there is reason for serious alarm. No time should be lost in obtaining intelligent advice, for in all probability that terrible foe to human life, consumption, is making its first advances. The mother who indulges the hope that the long-continued cough is due to worms, teething, etc., without seeking the opinion of the family physician in the matter, may find that she has been nursing a delusion fatal to her child.

THE PULSE OF A SICK CHILD.

In infancy and early childhood, the feeling of the pulse is far more difficult than in more advanced life. So difficult, indeed, is the task, that it requires the

educated touch of the physician to properly appreciate variations in the frequency, force, and regularity of the beat.

The pulse in children is much more frequent than in adults; it is also much more readily influenced by disordered health, position, excitement, and motion. It is, therefore, a very uncertain guide, particularly to the unskilled finger.

PAIN.

In speaking of the expression of the face, as furnishing a guide by which to distinguish disease, we pointed out the manner of telling the nature and degree of the pain suffered, by the countenance and motions of the child. The signs of pain will be transient or permanent, according as the pain itself is intermittent or constant. The cries, also, as we have pointed out, are indicative of the character of the suffering, and, hence, of the disease producing it. Of all the signs of the presence of disease in a child, pain is the least likely to escape notice, for children are not stoics, and never suffer in silence.

FEVER.

A hot skin is one of the earliest signs of deranged health, but the occurrence of fever in young children may be of serious import, or may mean nothing at all. There are some children who have readily a slight fever excited by a very trifling cause—too long a

walk, a fright, a change of food, etc., will bring it on in those feverishly disposed. All diseases, at this early age, quickly light up a fever in the system; indeed the great physiological activity which is present almost borders upon a condition of feverish excitement.

We must, therefore, inquire in each case, whether the fever is severe or accompanied with other symptoms, before we permit ourselves to be alarmed about the welfare of the little one. If the undue heat of skin be not attended with headache, nor cough, nor other grave symptom, it will probably pass away in the course of ten or twelve hours. If there exist in the neighborhood any cases of chills and fever, and if the attack has commenced with a chill, the child has probably that disease, and proper treatment should be instituted.

If the fever persist beyond ten or twelve hours, it becomes probable that some eruptive disease—measles, scarlet fever, chicken-pox, or smallpox—is coming on. If the fever be accompanied with nausea or vomiting, with a ringing cough, suffused eyes, and running from the nose, it is probably an attack of measles. If the fever have been preceded by chills, if there exist much headache, intense heat of skin, sore throat, and a very quick pulse, it is likely that the case is one of scarlet fever. If the fever be very high, with vague muscular pains particularly situated in the lower part of the back, and there be an absence of the peculiar signs of measles and scarlet fever, some form of smallpox or varioloid may be anticipated. The actual

existence of one of these eruptive diseases in the vicinity aids greatly in recognizing the meaning of these early signs.

As for *serious fevers* of long duration, such as typhoid and the like, they are announced from afar by persistent troubles of the digestive and nervous systems, which can scarcely fail to excite alarm and lead to the summoning of the family physician.

In order to *recognize the presence of fever*, the pulse is not a sufficient guide for the mother, she must habituate herself to note the heat of the skin by placing the hand on different parts of the child's body. A little practice will enable her quickly to observe any undue elevation of temperature. The left hand being more sensitive to heat, should be employed for this purpose rather than the right, which has the acuter sense of touch.

Children are frequently noticed to have particular parts of the body alone very hot, the temperature of the rest not seeming raised. The palms of the hands, for instance, will attract attention by their burning. This may be merely due to too much mental excitement or over-fatigue, but should excite the watchful care of the mother to remove the cause. Heat of the head may be occasioned in the same way as by teething, and, when unaccompanied by other symptoms, requires only rest, quiet, and bathing with cool water. The feet are prone to be too cold rather than too hot. Coldness of the feet is noticed in colicky and other affections of the bowels, and is habitual in pale, feeble, and scrofulous children.

In addition to the observance of the temperature of the skin, the mother should be ready to detect any changes in the color, any unusual dryness or moisture, and the presence of any eruptions or swellings. The daily bath affords an opportunity for the careful scrutiny of the whole surface of the young child's body, which should not be neglected.

DISTURBED SLEEP.

In health a child sleeps quietly and soundly. This peaceful sleep is easily disturbed by the slightest disorder. Its calm is then broken by restlessness and cries, and either the child wakes or continues to doze in this uneasy manner. While very slight causes, such as the cutting of a tooth, an overloaded stomach, or a little fever, are sufficient to interrupt the sleep at night, one of the earliest symptoms of serious maladies is this tossing and wakefulness, so distressing to the mother. From the disturbed sleep alone it is not possible, of course, to tell the exact ailment which is present or threatened, but merely that there is something wrong; the other signs which accompany this point to the character and degree of the disease.

THE TONGUE OF A SICK CHILD.

This organ has been described as the "mirror of the stomach," an accurate reflector of what is passing in the digestive tract. But its importance has been exaggerated. Certainly in America there are few

children or adults without, when in their best health, a tongue more or less coated. Again, in certain diseases of the bowels it is not uncommon to find the child's tongue presenting its natural red color. Still, any marked variation from the usual condition of the tongue should excite the suspicion that there is some trouble in the stomach or elsewhere. It is well to teach a child to put out its tongue when told, otherwise, when ill, the attempt to see it on the part of the doctor may lead to an exciting and more or less injurious struggle. Some children learn this lesson so well, that the approach of the family physician, even on the street, is a signal for protruding the tongue at him, more to the amusement of the passers-by than of the doctor.

THE MANNER OF DRINKING.

The way in which an infant nurses, and in which they and older children drink, affords a valuable indication to the watchful eye. The refusal of the nipple, or the letting go of it with a cry, although the child is evidently hungry, points to the existence of a sore mouth. Soreness of the throat causes the child to swallow in a gulping manner, and excites cough. In diseases of the chest and air-passages, the child will not nurse regularly, but stops frequently to get its breath.

In drinking, a child when in health naturally drains the cup without pausing to breathe, when suffering from inflammatory diseases of the lungs it swallows

only a few mouthfuls at a time, being unable to retain its breath longer. If the child drink slowly and with evident pain, but without any embarrassment of the breathing, then there is probably some trouble in the throat which interferes with the passage of the fluid. A dry mouth, together with a desire to drink frequently and much, shows a feverish condition of the system.

THE APPETITE.

Whatever may be the nature of the disease from which a child is about to suffer, loss of appetite will ordinarily be one of the earliest symptoms to attract attention. This, associated with increased thirst and heat of skin, restlessness at night, general fretfulness, and indisposition to play or exertion, will be found among the commonest premonitory signs of illness.

THE BELLY.

A big belly in a thin child excites alarm in the mind of the mother, who fears all she has ever heard of the dangers of marasmus. Nevertheless, this distension of the abdomen is often due merely to too much wind in the bowels, to which children reduced by illness are particularly liable, owing to the weakness of the abdominal walls. It may also be occasioned by displacement of the liver or spleen, which often occurs in rickets; this can only be recognized by the physician. As a rule, flatulence, the accu-

mulation of air in the bowels, is the cause of the big belly in delicate children. There is no reason, therefore, for anxiety. In such cases the bowels are deranged, and the food being badly digested, sets free by its decomposition the gas which produces the swelling and discomfort.

VOMITING.

Children vomit much more frequently than older persons. The reason of this is that the stomach is in early life less curved than it becomes in after years, hence it more easily rejects its contents. The vomiting of infancy and childhood is as often an evidence of slight indisposition, resulting from too much milk from a full breast or too much food eaten at the table, as it is of any serious ailment.

The throwing up of milk by an infant at an abundant breast is hardly to be termed vomiting, it is more properly the overflowing of the completely filled stomach. In these cases the milk is not changed, but is returned not at all or but slightly curdled. Such a condition of affairs cannot excite any alarm, the remedy is to guard against the over-distension of the stomach.

When, however, the vomiting is occasioned by the cramming of the stomach with more food than it can digest, the health may be disordered by the resulting disturbance. The presence of bile in the vomited matter merely shows that the contents of the stomach are well emptied, and that the bile is forced into that

organ by the effort attending the straining. All that is to be done to overcome such "biliousness" as this is to stop the vomiting. The proper method of doing this will be mentioned in the third part of this book, when discussing the diseases of children and their treatment. We are merely now concerned with the meaning of vomiting as a symptom.

When the child appears relieved after the vomiting, there is no need for any medication for the trouble; the over-distended stomach has been remedied by the emptying of its contents; when, however, the vomiting is repeated at short intervals, when the retching is severe, the child weak and white, or the skin hot, then this symptom points to some ailment demanding attention. It may be the first indication of the presence of an eruptive fever, or of disease of the drain, or it may show some dyspeptic or inflammatory condition of the stomach. The cause should be diligently sought by observing which of the other signs of disease, we are now engaged in detailing, are present.

THE PASSAGES OF A SICK CHILD.

The mother should bear in mind that the infant has naturally from two to three passages a day in a state of health. It is only when the child varies from its habit—of one or three passages in the twenty-four hours, as the case may be—that there is any sign of deranged health.

Diarrhœa is a symptom of too much or improper food, of a disordered condition of the mother's milk,

of trouble with teething, of too great heat of the atmosphere, and of various fevers. It occurs during the progress of measles and scarlet fever in many cases, but, unless too protracted, is not then necessarily a serious symptom. Slight looseness of the bowels, with colicky pains, is one of the earlier signs of typhoid fever. When diarrhœa is watery and accompanied with vomiting, medical advice is required, for there is danger the disease may be cholera infantum. The finding of blood in the stools indicates there is something more than diarrhœa—that the case is one of dysentery.

The *color* of the stools is to be noticed. In health they are brown, or if the diet be milk only, of a golden-yellow color. Green stools occur during teething, and after any slight diarrhœa produced by undigested food. The normal form of the discharge from the bowels in early life is pappy: the smell is never pungently offensive, except where children are allowed a meat diet.

CONVULSIONS OR FITS.

What is the meaning of fits in children? Do they always indicate disease of the brain, and is there a just cause for the alarm they usually excite in the mother?

Fits in early life take place under very various circumstances. They sometimes portend a serious brain affection, they may merely result from the cutting of a tooth, from a slight fright, from the presence of some indigested food in the stomach.

When a fit is occasioned by *disease of the brain*, it will ordinarily be found that both sides of the body are not alike affected, the arm and leg of one side being in active motion, while the other is quite still. After the fit has passed off, the side of the body which was not in motion will probably be seen to be relatively or entirely powerless, the limbs supple, easily drawn up and down by another person, but, if left alone, bent upon themselves, the forearm upon the arm, the fingers upon the palm of the hand. After such a fit as this, consciousness will not return to the child at once. When partial or complete palsy of one-half of the body remains after the fit, there is, without doubt, some disease of the brain-structure.

The mother should know that the occurrence of a fit is not often the first sign of brain disease, but usually follows other symptoms which have existed for some time, such as dislike to light and noise, fretfulness, disturbed sleep, vitiated appetite, nausea, and vomiting, with constipation of the bowels, headache, dizziness, and heat of the head. All or many of these evidences of disordered health will have existed for some time, and excited attention and alarm, before the coming on of the fit.

When a fit comes on suddenly, of its own accord, as it were, in a child in its apparently usual health, it need not occasion much alarm. It is doubtless the effect of some trivial cause, the pain, perhaps, of a tooth just passing through the gums. In many children, an attack of catarrh of the chest is always ushered in by a fit, so also are frequently measles and

scarlet fever, the convulsions ceasing on the appearance of the rash. In fact, owing to the impressibility of the nervous system in childhood, fits are very readily excited by almost any cause which awakens emotion, pain, or disordered action of any part of the body. Hence, they are not nearly as grave a sign of disease as in adult life.

We have now passed in review some of the most prominent symptoms which present themselves when a child is ill, and have endeavored to show the diseases which they more particularly indicate. The consideration of these diseases themselves finds a proper place elsewhere. Their prevention has already been discussed in part first of this volume, their home treatment will be given in part third, under "Diseases of Children."

Having thus, to the best of our ability, enabled the mother to tell when her child is sick, we proceed now to help her in caring for her sick child.

II. The Chamber of the Sick Child.

In the care of a sick child, little things often determine great results. It is by attention to trifles, humble and minute though they may appear, that the comfort and safety of the little sufferer are secured. The doctor prescribes, the mother or the nurse executes, and in proportion to her intelligence and devotion will be the measure of success in the attempt to restore health.

The task of properly managing the room of the

sick child is no easy one. It requires knowledge and tact; it is an art, and a most useful one. What is here required of the home nurse? It is necessary for her to maintain perfect order and the most scrupulous cleanliness in the midst of much calculated to interfere with both; to prevent noise; to renew and purify the air; and to regulate the amount of light and heat. These various duties we shall consider in detail. First, then, as to

ORDER AND CLEANLINESS IN THE ROOM OF THE SICK CHILD.

It is said that the love of order is peculiarly a feminine trait. No mother destitute of it can give proper attention to her child during its illness. At this time of all others, in the sick chamber of all places, this quality is imperatively demanded to see that everything is in its place, that the most is made of space and time, and that regularity and systematic diligence are observed.

The room should contain nothing for which there is no need. Useless objects should not be allowed to accumulate on the tables or mantles, hence glasses, cups, and bottles not in actual service are to be removed. A small table, covered with a white cloth and placed at one side or in a corner of the room, makes the neatest and most convenient receptacle for the medicine bottles, the iced or warm drinks, the lotions, etc., which are in constant demand. Here, systematically arranged, they can readily be found

when the hour, the symptom, or the desire of the patient calls for them. Every physician knows what a pleasure it is to enter a sick-room which is thus prepared; he feels that he is not alone in combating the disease, but is sustained in his efforts. Too often is he not only unaided, but obliged also to contend against the effects upon his patient of negligence, forgetfulness, and thoughtlessness on the part of the attendants.

Cleanliness is ordinarily found hand in hand with order. If cleanliness be necessary to preserve, it is doubly so to restore the health of children. We speak here now only of the cleanliness of the chamber. Elsewhere we will discuss the importance of cleanliness of the bed and person of the child. The air of the room should be free from the slightest odor. This can be effected by means of proper ventilation, the employment of disinfectants, and by removing promptly from the apartment all evacuations and soiled linen.

THE VENTILATION OF THE ROOM OF THE SICK CHILD.

It has been advised, as the best method of maintaining the purity of the air, to have two chambers communicating the one with the other. When this is possible, the circumstances are, doubtless, the most favorable, for the child can always be readily carried in the arms, or when much exhausted its little bed may be pushed, from one room to the other. In the morning, it is moved into one of the rooms for the day, and the communicating door closed. The windows

of the room which it has left are then opened and the fresh air admitted; the child returns here to pass the night, after the temperature has been first carefully raised to the proper point. Unfortunately this most desirable arrangement, of two adjoining rooms, is not always practicable.

When a single room is all that is at the disposal of the family, the air in it should be changed several times a day. This may be done with safety to the child by covering it up and protecting it from drafts. The fresh air is always beneficial; it is only currents of air which are injurious. Particularly in cases of fever is it of the utmost moment to renew the air, and thus prevent the child from being poisoned by its own emanations.

The temptation which presents itself to the mind of many a nurse upon noticing unpleasant odors or a sensation of closeness in the sick-room, is to remove this by deodorizing the apartment, *i. e.*, by the employment of some fragrant perfume. Perhaps this process will be dignified by the name of disinfection. Now, to deodorize the air of a room is not to disinfect it. A bad smell is only masked by a deodorizer; the offending matter remains in the atmosphere, its presence is merely concealed. A disinfectant, on the contrary, decomposes the noxious matter and renders it inert; but it cannot restore to the air its chemical purity, its oxygen, its vivifying properties. The best way, therefore, both of deodorizing and disinfecting a room, is to renew the air in it, to replace the vitiated

and poisoned atmosphere by that which is fresh and pure.

A sick-chamber, well cared for, ought to have no odor. To conceal an odor by burning camphor, sugar, vinegar, or by sprinkling upon the bedclothing or diffusing throughout the air the vapor of cologne-water, etc., is not to purify the air, but only to substitute a pleasant for a disagreeable scent. The most grateful and healthful of smells is the absence of all.

In this connection, a useful suggestion occurs. Highly scented flowers, and very odorous medicines, such as musk, valerian, assafœtida, should not be suffered to remain in the room. The sensitive nervous systems of children are readily affected by powerful perfumes; even the fragrance of cologne-water is often too decided, and productive of harm.

All nurses should avoid the use of powerful perfumery. Every sick-room visitor should also bear this caution in mind, in order not to contaminate the atmosphere of the sick child with the odor of a fashionable essence, or of tobacco.

THE NECESSITY FOR QUIET IN THE ROOM OF THE SICK CHILD.

The room is to be carefully kept free from noise. The ceaseless chatter of injudicious visitors, the loud sports of boisterous children, and the raised tones of voice in conversation of the members of the family, may undo the effects of the most skilful medical treatment.

In many affections of young children sensitiveness to sounds is strongly developed, and those noises which would not be noticed in a condition of health make hurtful and dangerous impressions. For this reason, heavy footsteps which shake the floor of the chamber, the creaking or the slamming of a door, the monotonous loud ticking of a clock, the shouting of directions from one part of the house to the other, the rattle of spoons in cups or glasses, the rustle of a silk dress, the turning of a newspaper—all these may agitate the mute sufferer and deprive it of sleep. Particularly in disorders of the brain is it important that quiet be preserved in the room and throughout the house. Then all necessary talking should be carried on in a voice "soft, gentle, and low," not in a whisper, which is apt to disturb the patient; and all necessary movements about the room should be made by treading carefully, not on tiptoe, which is a fussy and insecure way of walking. The child must be spoken *to* gently, its attention being secured by addressing it affectionately with some familiar term of endearment.

There is one method of securing quiet to the sick child, to which little attention has been called. We recommend it to all mothers. It is simply by placing cotton in the ears. In this way it is much easier to shut the ears of the child than to close the mouths of well-intending visitors, who come to offer their assistance, and to discuss the symptoms of the case and of similar cases at the bedside. Deafness is often the only possible remedy against the interminable talk of such persons. This is also a ready method

of shutting out from the excitable brain the usual or extraordinary noises occurring upon the streets. This simple recommendation will, under many circumstances, be found of extreme practical value, particularly when the house or neighborhood is necessarily noisy.

THE AMOUNT OF LIGHT IN THE ROOM OF THE SICK CHILD.

The question as to the proper amount of light in the room may be answered thus: in diseases attended with fever and nervous excitement, partial darkness is required; in long-standing diseases, attended with pallor and debility, as well as during convalescence, the room should be flooded with light.

Light is an excitant. It excites by its action upon the skin, and by the impression it makes upon the brain through the sense of vision, which impression is then communicated to the whole nervous system. Diseases, therefore, which are characterized by delirium, wandering of the mind, great nervous irritability, and much fever, ought to be cared for in a darkened room; not one from which all daylight is excluded, but where an artificial twilight is made by partially closing the blinds and shutters. The bed should be so situated that both during the day and night the child's face may be turned from and not towards the light, if it so desire.

The lighting of the chamber during the night is a matter deserving more thought than is usually given it. The lamp or gas-jet should be so disposed as to

permit of the patient being seen without the danger either of dazzling its eyes, or of throwing upon the wall or ceiling shadows which may frighten a mind weakened by fever and delirium; care must be taken also that the purity of the air be not interfered with by a smoking flame or the escape of unconsumed gas. Even persons in health would suffer from the effects of the acrid, irritating, and disagreeable products of the flame of a badly-cared-for lamp burning during the night; the respiration of these products, by a sick child, provokes cough and induces fever.

We have already spoken of the precautions to be taken in placing the lamp. Its proper position in the room can only be determined by experiment. It not unfrequently happens that children are observed to lie with their eyes fixed on the ceiling, showing, by their emotion, evident signs of fear. A shadow projected upon the ceiling by some object in the room, takes to their alarmed gaze fantastic proportions and shapes, and is the cause of nervous agitation. If the shadow be that of a person in the room, its movements, from side to side, may so increase the terror as to bring on an access of delirium.

When our little patient is on the road to recovery, or when the disease is not an active one, but of long duration, then the sun is not an unwelcome visitor to the sick-chamber; it becomes a friend in need, a healer of great power. No medicine can replace it in slow diseases or during convalescence. Allow it, therefore, free access. An Italian proverb says, "Where the sun enters not, there the physician is wanted." And,

again, "All diseases come from the shade and are cured in the sun." These expressions are too forcible and general, as we have pointed out, but, bearing in mind the exceptional circumstances mentioned, they express with justice the usefulness of permitting the light to penetrate all parts of the sick-room.

THE TEMPERATURE OF THE ROOM OF THE SICK CHILD.

It does not require much medical knowledge to see the necessity of regulating the temperature of the air surrounding a child burning with fever or harassed by a painful cough. The feelings of no one can be trusted in this matter, *a thermometer must be consulted.* This instrument should be kept at a distance from the fire, and be placed at the same height as the bed, in order to ascertain the exact degree of warmth of the air which the patient breathes.

In cases of cough, a room too cold will not only increase the frequency and severity of the attacks of coughing, but will very likely add to the trouble in the bronchial tubes or the lungs. In such cases the temperature should not be lower than 60 degrees. The air drawn into the lungs when they are inflamed ought to be warm, in order not to augment the distress of breathing. The patient must not, however, be covered too heavily with bedclothing when the skin is heated by fever. A room comfortably warm, and light coverings for the bed, are the most conducive to the well-being of the little one.

In general, there is a tendency in winter to keep

the sick-room too warm rather than too cool, and, in addition, to multiply to too great an extent the number of clothes on the bed. From sixty to sixty-five is ordinarily the proper degree of warmth. In those cases, however, in which the brain is disordered, the thermometer, hung away from the fire and out of a draft, ought to be kept as low as fifty-five degrees.

The chamber of a child sick in the winter, ought to have a southern exposure, which is especially needed during convalescence.

Care must be taken in selecting the chamber for the child, that one be chosen of which the chimney does not smoke. It has been said that a good chimney is nearly as invaluable as a good friend; both are rare, and both can only be recognized in the use. An open fireplace is most to be desired, for it acts as a means of ventilation.

The temperature of the room should be kept as nearly *uniform* as possible. This is difficult, owing to the variation in the number of persons in it, the presence or absence of the sun on the windows, the opening and shutting of the doors, and the change in the fire. Still, by a close observation of the thermometer and an attentive general oversight, this end can be nearly accomplished.

In most active diseases, particularly where there is fever, the thermometer should be kept at about sixty, as we have said. This degree of warmth does not interfere with the action of the lungs nor congest the head, while it leaves the skin ready to respond to any tendency toward perspiration; moreover, the child may

partially uncover itself without risk of taking cold. When, however, it is designed to excite perspiration or to combat an inclination to chilliness, the temperature may be elevated to seventy degrees or over. But the physician is the judge of the necessity for so high a temperature, and will direct it when proper.

In southern climates, or during the summer in the north, it is often necessary *to cool the air in the interior of the chamber*. This task is more difficult than the opposite, of warming it. The opening of a window, instead of cooling the room, renders it warmer by admitting the sultry air from without. There is no resource excepting in a current of air established between two openings, the bed, well guarded, being removed from the draft.

There are two methods of cooling the air artificially: one by evaporating water, the other by melting ice. When it is desirable that the air be made both moist and cool, this can be effected by suspending in the chamber a large well-moistened piece of cloth. The physicians of olden times caused odorless green branches covered with their leaves to be placed in the rooms of their patients, in order at the same time to purify the air, to cool it, and to please the sight of the sick.

A simple and inexpensive way of cooling a room during hot weather is by means of flat vessels or dishes filled with ice. When a sufficiently low temperature is obtained, the refrigerating dish is removed, to be brought back when the warmth becomes greater than is desired.

VISITORS TO THE ROOM OF THE SICK CHILD.

But few visitors should ever be admitted—never many at a time. The door of the sick-room ought to be closely shut against all those who have not some useful office to fill within. The crowd of indiscreet visitors who like to seat themselves for hours at the bedside, resemble the mob that rush to a fire; they are of no service, and do much harm by their officious and meddlesome conduct. We do not wish to decry sympathy, nor check its manifestation; it is one of the purest and noblest of human feelings. But that sort of sympathy which never finds expression in any *useful* form, which is indiscreet and noisy, should be forced to content itself with inquiries outside of the sick-room.

III. The Person of the Sick Child.

A sufficient amount of attention is not ordinarily paid to preserving the cleanliness of the person of the sick child. Children who are bathed daily when well, often go for twenty-four hours with unwashed hands and face when ill. It would seem that there is a natural want of compatibility between sickness and the sponge. On the appearance of disease, the use of water ceases. In consequence, the skin, badly cared for, acts in an imperfect manner; the soiled face has an unnatural complexion, and those prominent parts of the body upon which the child rests in bed are apt to become sore.

A well washed and combed child is the glory of a mother, in whatever condition of life she may be. She ought to take more pride and care in these matters when her child is ill than when well, for her responsibility is greater. The cheeks of the sick babe tell at a glance the tale of negligence or watchful solicitude on the part of the mother.

But why is there this strange want of attention to proper ablutions during the sickness of children? Carelessness and ignorance account for it in some measure. These are inexcusable. But, beside these causes, there is a wide-spread prejudice against the use of the sponge or wet towel and the cleansing bath during sickness. Mothers fear the enfeebled child will "take cold." This fear is unfounded, if proper precautions be used.

BATHING.

The treatment of every disease, unless forbidden by the doctor, ought to be begun by a warm bath. It is easy to bathe a child. This easy remedy should be the first employed on the appearance of illness. It secures the free action of the skin and allays febrile excitement.

But, it will be asked, shall the child be bathed during the course of a sickness? With proper care to guard against undue exposure of the person, the warm bath is a measure of the greatest utility. When one thinks of the comfort it brings to a child exhausted by want of sleep and parched by fever, and recalls the importance of maintaining the skin as nearly as possible in

a condition of physiological activity, he cannot but regret that a remedial resource so precious is not more frequently invoked.

HOW TO BATHE A SICK CHILD.

It may be said that the child is frightened at the sight of the bath, and that its screams and struggles do it more harm than the bath does good. We answer, there is no occasion for any such terror, and that all this excitement may readily be avoided. When the child has a repugnance to the water, as is sometimes the case, the bath-tub should not be prepared in the room, and placed with its cloud of steam at the bedside of the frightened little one. The bath ought to be got ready out of the sight of the unwilling patient. When ready, bring it into the room, covered with a blanket to conceal the water and prevent the steam from rising. If the child be very fearful, it need not be undressed, but placed gently upon the blanket and lowered into the water. Some corks with feathers, or other floating playthings, put beside it in the water, will make the baby quite happy. A little management of this kind will deprive the bath of all its terrors. If any tears be shed, they will fall upon leaving the tub, not on entering it.

The temperature of the warm bath should be from ninety-five to ninety-eight degrees. The thermometer, not the hand, is to be used to determine the proper degree of heat. Care must be taken, by the addition

of warm water, to prevent the bath from cooling while the child is in it.

Children affected with diarrhœa require especial care. Unless this be observed, the skin is apt to become inflamed and sore. The use of soap and water is not all that is required; indeed soap is very likely to irritate the skin, and in these cases had better be employed very sparingly or not at all. Thin starch—much thinner than that used for wash-clothes—is soft, soothing, and cleansing to the tender skin. After drying the parts carefully by patting with a soft cloth, if they be very red and sore, they should be dusted with zinc powder. For this purpose obtain some *precipitated carbonate of zinc* from the druggist—not *calamine* powder, which is an *impure* carbonate of zinc.

Children affected with rashes are supposed to be particularly liable to take cold or have the rash driven in if the surface of the body be washed or the linen changed. So far is this from being true, that even in cases of measles, in which there is usually the most fear, there is not a particle of danger of this sort if lukewarm water be employed, and only a part of the surface of the body exposed at one time. The passing of a damp sponge over the heated skin is a most agreeable and harmless application when the little sufferer is burning hot with fever. The body clothing requires changing more frequently in fevers than almost any other affections.

THE COLD, THE WARM, AND THE HOT BATH.

Baths are employed in the sickness of children, not only for purposes of cleanliness, but also as remedies. They may be cold, warm, hot, or medicated.

The *cold bath* is used in the treatment of St. Vitus' dance and scarlet fever; of this we shall speak in the chapters devoted to the consideration of these diseases. As a *preventive* of croup, a morning bath, in water which has stood in the room over night, is an excellent prescription, provided the child is allowed to remain only a minute, and is then briskly rubbed and quickly clothed.

The *warm bath* is a safe and most valuable remedy in an attack of croup. It should be resorted to at once. The water of about 96° when the little one is first immersed in it, should be raised, by adding hotter water, to 98° or 100°. The bath is to be continued for fifteen or twenty minutes. Whenever a child has a fit, place it in a warm bath, and keep it there for a quarter of an hour, or until the fit is over. No harm can result from this; no remedy is safer or better. In measles, warm bathing is agreeable and efficient.

The *hot bath* is of service in the dropsy which sometimes follows scarlet fever.

MEDICATED BATHS.

These are baths to which sulphur and other articles are added; they are useful in various cases. They will

be considered in the next chapter, and exact receipts given (for page, see index).

The bath and the sponge ought never to be long absent from the sick-room of a child. A clean skin is even more necessary in disease than in health.

THE LINEN OF A SICK CHILD

Ought to be frequently changed. Physicians find it necessary to combat daily the prejudice against changing the linen, especially when the little patients are covered with perspiration. At this time, above all others, is a renewal of the linen called for two or even three times during the day. The fear of suppressing the perspiration is gratuitous; indeed, perfectly dry clothing placed next the skin will excite it the more, by presenting a tissue capable of absorbing moisture, and by preventing the sensation of cold, which is produced by that which is wet with perspiration.

During an attack of an acute disease, the linen of a child ought to be completely replaced at least once every day. With proper precaution, there is no fear of either cold or fatigue being caused by so doing. All inconvenience is the more readily avoided if the shirt or gown of the child be made in a form admitting of easy adjustment and removal.

The care of the hair of the sick child demands attention. The hair should not be left uncombed, to form a matted cap impregnated with sweat, and exhaling an offensive odor. Neither is it an appropriate time to

make an elegant artistic arrangement of the hair. But the head ought to be combed daily, in order that the air may circulate there, and that the scalp may be kept cool and clean.

THE BED AND BEDDING OF THE SICK CHILD.

Free passage around the bed of a child is necessary for its proper care, and the proper circulation of air. For this reason, the placing of the bedstead in an alcove or a corner of the room is objectionable.

Feather beds, so detestable for adults, are still more so for children, and especially sick children. Their slight power of conducting heat renders them oppressive, and they are readily impregnated with the exhalations from the body.

Care must be taken not to overwhelm the child with too great a weight of bedclothes. Too many coverings on the bed increase the fever, sometimes provoke delirium, excite excessive sweating, and keep the body surrounded by an impure atmosphere. The child should be kept properly warm by attention to the temperature of the room, and not by heaping blankets and coverlets on the bed.

It is important to change frequently the position of the bedridden child. It should be placed now on one side, soon on the other, then for a while supported in a half-sitting posture by the aid of the bolster, and in no case be permitted to remain too long in the horizontal position. The attitude of lying prostrate

interferes with the free circulation of the blood, and leads to an engorgement, perhaps inflammation, of the lungs. Mothers ought to know, therefore, and remember that (excepting in certain stages of those few diseases in which this is expressly forbidden by the physician) it is of the greatest moment to raise the child from time to time, and carry it about in the arms, or, at least, alter its position in the bed. There are few diseases in which this practice cannot be repeated with the greatest advantage three or four times a day.

The iron bedstead is better than one of wood, as it affords a free circulation to the air, and does not absorb damp.

We have just recommended, in speaking of the chamber of the sick child, that two communicating rooms be secured if possible, in order that one may be thoroughly ventilated while the patient occupies the other. We now also advise two beds. The little patient should pass one-half the day in one, the other twelve hours in the second bed. No sheets or coverings are to be carried from one bed to the other. The vacant bed and its coverings are to be thoroughly aired. This change from bed to bed is most favorable to cleanliness, and will be found to add greatly to comfort, and to materially aid in inviting refreshing sleep.

IV. The Food and Drinks of the Sick Child.

During sickness, particularly of young children, drinks constitute the principal nourishment taken.

Their nature, frequency of administration, temperature, etc. are all matters demanding attention.

THE AMOUNT OF THE DRINKS.

Children suffering with a fever naturally desire cold drinks. There is no harm in allaying the burning thirst with cold water, and no necessity of forcing upon them lukewarm toast or barley-water. The quantity given at a time should be small, not more than a couple of tablespoonfuls, but it may be quite cold. The drink ought to be offered only in a *very small* cup or glass. If the child empty this, it will be quite satisfied for a time, while it would be very discontent if permitted to but half empty even a very large tumbler.

It is only prejudice—which we are glad to notice is passing away—which would deny the little sufferer from fever or cough the refreshing drafts of cold water for which it longs. It may be allowed almost as often as asked for, if given in the manner and amount we have mentioned. Thirst has been called the "cross of the unhappy sick." This cross, so hard to bear, may be much lightened, without injury to the patient, by intelligent management.

When the stomach is in a very irritable condition, the quantity of milk or other fluid food swallowed at one time should be small, but frequently repeated. In this manner a considerable amount of nourishment may be taken during the twenty-four hours, and retained by a delicate stomach.

THE TEMPERATURE OF THE DRINKS

Has a marked influence upon the system. Every one knows that hot drinks act upon the skin and excite perspiration; that warm drinks tend to induce sickness at the stomach, and thus indirectly to make the skin moist; and that cold drinks increase the action of the kidneys.

When it is desirable to make the skin moist, it is well to give the child some warm diet-drink (one of those we are about to describe), and every quarter of an hour about a tablespoonful of water in a tiny cup. When, however, there is no urgent necessity of producing perspiration, the child's thirst may be satisfied by offering it cold water altogether, but always in the little glass of which we have spoken, so that too much may not be taken into the stomach at one draft.

DIET-DRINKS.

The number of diet-drinks is very great. They have a high reputation in domestic practice. The French have a much larger variety (under the name of *tisanes*) than we. Many of their preparations deserve to be better known here.

Barley-water.—This has been described as the most classic of the diet-drinks, it having been recommended by Hippocrates himself, the great Father of Medicine, in the fifth century before Christ. It is a useful drink in all feverish conditions, particularly in

inflammations of the lungs, bowels, or kidneys. When there is diarrhœa, it is to be preferred to rice-water, having a more soothing action upon the bowels.

In preparing barley-water, pearl barley should be chosen.

Take of—
Well-washed Pearl Barley, two ounces; and boil it for a short time in half a pint of water.
Throw away the water from the barley, and add two quarts of boiling water.
Boil the whole down to a quart, and strain.

In cases of catarrh in the chest, a very useful and agreeable preparation, which is soothing to the cough and slightly laxative in its effects on the bowels, may be had by adding to the quart of barley-water, made in the above-described manner, two ounces and a half of figs, five drachms of bruised liquorice-root, two ounces and a half of stoned raisins, and a pint of water. Boil the whole down to a quart, and strain.

Or, instead of this compound barley-water, the simple barley-water may be sweetened, in cases of cough, with a little honey.

Oatmeal Gruel.—This is a nourishing and agreeable dietetic preparation. It acts slightly both upon the bowels and kidneys. Although so frequently used in the sick-room, it is often improperly prepared. It may be made as follows:—

Take of—
Oatmeal, two tablespoonsful.
Cold water, one teacupful. Mix, and allow to stand for a few minutes until the meal swells.
Boiling water, one pint.
Throw in this boiling water the paste of meal made with the cold water, and boil for an hour, stirring occasionally. Then sweeten, and add a few stoned raisins and a little nutmeg.

A still more nutritious preparation may be made by using milk instead of water.

Rice-water.—This preparation has had, from time immemorial, a reputation in affections attended with looseness of the bowels. To make it, proceed as follows:—

Take two tablespoonsful of Rice, and boil in a quart of water for an hour and a half. Then sweeten and flavor to suit the case.

Toast Water.

Take some Toast, made as brown as it can be without burning. Put it in a bowl, and pour cold water over it. Sweeten.

Sour Drinks.—These drinks are generally taken cold. The most usual are lemonade, orangeade, and tamarind water. The last in particular forms a very grateful drink when there is fever; it is slightly laxative.

Milk.—This drink has the great advantage over all others in the fact that it alone contains all that is necessary to support life; it can, even if no other food

be taken, supply all the needs of the system for repairing waste and building up tissue. Moreover, it thus completely nourishes the body without fatiguing the stomach or exciting the nervous system, an advantage of great moment in feverish conditions. Its use, pure or diluted with water, or mixed with other drinks, is indispensable in the diet of a sick child.

Tea ought to be banished from the table of young children, sick or well. Their nervous system is too prominent and excitable to permit of the use of drinks of this character without more or less injury. The same remark may be made with reference to *coffee*.

DIETETIC PREPARATIONS FOR THE SICK CHILD.

Arrowroot Pap.—This is an excellent dietetic preparation in all febrile complaints, and in disorders of the stomach and bowels. It is best made in the following manner:—

Mix a heaping tablespoonful of Arrowroot with sufficient cold water to make a paste. Gradually add to this paste a pint of boiling water, stirring it well all the time. Keep the mixture on the fire for five minutes.

Arrowroot Pap with Milk.

Mix a dessertspoonful of Arrowroot to a smooth paste in a little cold Milk; place a pint of Milk on the fire to boil; as soon as it boils, stir in the mixture of arrowroot and milk; keep the whole on the fire for five or ten minutes, stirring it constantly; then flavor to please the patient.

This preparation is more nourishing than arrowroot pap made with water, but in some cases the latter is preferable.

Tapioca.

Place a teaspoonful of Tapioca in a teacupful of cold water, and allow it to soak during the night. Then add a pint of water or milk, and a little salt. Put the mixture on the fire to simmer, and stir well, after its removal, while cooling. Sugar and nutmeg, etc. may be used to render it more palatable.

Sago.—This substance is usually better liked than arrowroot or tapioca, and it is more readily digested than rice. It is useful during recovery from an illness, and for a time advantageously takes the place of food richer but more apt to disagree.

Take a tablespoonful of Sago, and boil it for a long time in a pint of water. Take great care that all the grains be dissolved, and always strain the mixture. Nutmeg or some other spice may be used to season with, if not forbidden by the medical attendant.

Panada.

Stale Bread, cut half an inch thick, and free from crust, is to be toasted to a nice brown. Two slices of this toasted bread, cut into small squares, are to be placed in a bowl, and a little salt sprinkled on them. Then a pint of boiling water is to be poured on, and a little nutmeg grated over the surface.

Of course it is important, in making all these preparations, that they be not scorched. To guard against this, a double boiler is to be preferred. A double

boiler can be made at once by placing a pitcher in a large kettle of boiling water.

Pap of Unbolted Flour.

Take a tablespoonful of Unbolted Flour, and mix it with sufficient cold water to make the thickness of cream. Stir into this a pint of boiling water, and simmer until it becomes entirely clear. Add a little salt, and, after stirring and beating it well, remove it from the fire. Then mix with four tablespoonsful of Cream, and sweeten with white sugar.

The pap may be eaten with cream, and made thicker if preferred.

Pap of Boiled Flour.

Take a teacupful of Flour, tie it up tightly in a cloth, and boil for six hours. Cut off and throw away the outer soft, doughy portion of the ball. Grate the hard portion, and mix with cold Milk to the thickness of thin starch; then stir it into boiling milk, and sweeten with loaf sugar.

Gelatine Food.—The following preparation is one which has been long recommended by Dr. J. Forsyth Meigs, and which will be found to serve an excellent purpose in cases of sickness, as well as to make an admirable food for children brought up by the hand, or recently weaned. With a little care, it can readily be made, by any one acquainted with cooking, in a palatable form.

Take a piece, two inches square, of Gelatine, soak it in cold water for a short time, and then boil it in half a pint of water until it is dissolved, which will be in about ten or fifteen minutes. Have at hand a teaspoonful of Arrowroot, mixed into a paste with a little water, and add it to the boiling water, before removal from the fire, with a half tumbler of Milk, stirring the whole constantly. Then pour in one or two tablespoonsful of *cream*. Sweeten with a moderate quantity of loaf sugar, and, *at once*, take from over the fire. (If left over the fire, with the sugar in, it will burn.)

Dr. Merei's Food for Children.—The following direction for making a food suitable for *feeble children with disordered bowels* will also be found of great value:—

Take a teaspoonful of Arrowroot, and boil it in three-quarters of a pint of water. Mix this with one-quarter of a pint of slightly boiled Milk, and add one or two tablespoonsful of *cream*.

The above quantity represents one day's supply. Children digest well this amount, or half as much again, according to their age. As they get older, Dr. M. increases the proportion of the milk, but not of the cream.

Another excellent preparation of *arrowroot* is made as follows:—

Place a teaspoonful of Arrowroot into a porcelain vessel, with as much cold water as will make it into a fine dough. Then add a cupful of *boiling milk*, or of *beef-tea*, stir the mixture a little, and allow it to boil for a few minutes, until the whole acquires the consistency of a fine jelly.

Prof. Liebig's Soup is an admirable food for children, sick or well. It is made in the following manner:—

> Take a heaped tablespoonful of Wheat Flour, a tablespoonful, not quite so heaped, of Malt Meal, and seven and one-half grains of Bicarbonate of Potash. (The bicarbonate of potash may be obtained from the druggist, put up in powders of seven and one-half grains each, ready for use.) Mix the wheat flour, malt flour, and bicarbonate of potash well together; then add two tablespoonsful of water, and again mix, and finally mix with ten tablespoonsful of milk. Place the mixture upon a slow fire, and stir it constantly until it begins to get thick. At this period, remove the vessel from the fire, and stir the mixture for five minutes, heat it again until it gets thick, then remove and stir it until it becomes quite fluid, and finally heat it until it boils. The soup is purified from bran by passing it through a fine sieve (a piece of fine linen), and now it is ready for use.

The barley-malt required is to be had at any brewery. It must be freed from impurities, and then ground to a coarse meal in an ordinary coffee-mill. The wheat flour employed should be the common fresh wheat flour, and not *the finest*, for the latter is not so rich in starchy matter.

This soup is as sweet as milk, and, after boiling, may be kept for twenty-four hours without undergoing any change. It is slightly laxative in its effects upon the bowels. When there is a tendency to diarrhœa, instead of using the seven and a half grains of bicarbonate of potash, substitute twenty grains of *prepared chalk* in making the soup.

Children will frequently take *raw meat*, simply minced, when they are suffering from great debility.

One teaspoonful of such meat may be given every four hours.

In prostrated cases of cholera infantum, the *raw meat diet*, prepared as recommended by the distinguished French physician, Prof. Trousseau, will be often seized with avidity by children and well borne.

> Lean Beef or Mutton is first finely hashed, pounded in a mortar to a pulp, and then passed through a fine sieve. The thick concentrated juice thus obtained is nutritious and digestible, and, when salted or otherwise flavored, quite acceptable. Give one or two tablespoonsful in fractional doses the first day. If well borne by the stomach, increase the quantity day by day, until a quarter or half a pound is taken in the course of the twenty-four hours. For the first day or two, much of it may pass, hardly changed, from the bowels; but this alone should not occasion its discontinuance.

White of eggs thinned with natural or artificial Seltzer-water, or with weak lime-water, make an excellent drink in the summer bowel complaints of children.

For other dietetic preparations, see article on "Cookery for the Sick" (for page, look in Index).

In the case of the sick infant before the period of weaning, the best food it can have is that from the mother's breast, to which it should be confined alone during its illness, provided a sufficient amount of nourishment can be found there. The child will often seek to nurse when it is merely thirsty from the effects of fever. The danger of overloading the stomach in this way may be avoided by frequently giving it a small amount of cold water in a glass to drink.

ATTENTION TO GIVING FOOD.

In all cases of infantile disease, it is of the utmost moment that the child should be supported by proper nourishment. This requires attention to the giving of food on the part of the nurse. In many exhaustive affections, when the little patient is greatly reduced in strength, the desire for food ceases, or the power of expressing that desire is gone. The child sinks into a doze, and will pass hours without consciousness, and, of course, without making known the wants of its system for food. In these instances, if the child be not offered food because it does not seek it, or if food be withdrawn because it is not eagerly taken, the patient will become weaker and weaker, and finally pass into a condition beyond the reach of either food or medicine. It should be remembered that the life of the little one depends upon its having a proper quantity of nourishment. When the attending physician directs a certain quantity to be given at certain intervals, these directions should be scrupulously followed, a dereliction in duty may be fatal. Often the kindly perseverance and tender watchfulness of the nurse will be severely tried; for, in the fretfulness of sickness, the child will refuse at one moment what it will take readily almost the next. In very serious illnesses, when the child is much exhausted, a strict account should be kept on paper of the exact amount of food and drink given, and of the time of administration. Injudicious forcing of food upon the child *in cases of fever* may be productive of injury, as we shall

presently point out. In most diseases, however, the greatest danger is to be feared from the neglect of the mother to rightly support the flagging powers of the sick child by properly prepared and properly given food.

THE QUANTITY OF FOOD AND THE NUMBER OF MEALS.

A most important part of the treatment of a sick child consists in the regulation of the hour and the number of its repasts, the choice of its food, the way of preparing the articles of diet so as to make them most inviting to the palate and digestible by the stomach, the nature and amount of the condiments employed to season them, etc. There are many popular errors on these points, some of which we shall mention.

The amount of nourishment proper for a child during a *fever* is a subject of constant remark and prejudice. It is thought that all the child needs to strengthen it is food. The little sufferer for days has taken but a small quantity of barley-water or arrow-root, it is getting weaker and weaker, and the friends say "this is not surprising, for it eats nothing." Unfortunately the child requires something more than food, and the attempt to strengthen it by forced feeding only strengthens the disease. When there is much fever, food taken into the stomach is not digested, and therefore does harm, and may, if injudiciously administered, destroy the last faint chance of recovery. The directions of the attending physician in this regard

must therefore be scrupulously followed, for his skilled experience is required to determine the amount and nature of the nourishment needed. It is the part of the nurse to be implicitly obedient and to give *only* that kind and quantity of food which the doctor has ordered.

V. The Care of a Child recovering from Sickness.

The little patient, we will suppose, has happily passed through the severity of the attack of disease, and is pronounced by the family physician to be out of immediate danger. The anxiety of the mother is quieted, yet she must not imagine that the battle is entirely gained. There are yet a number of risks to which her charge is exposed, before health can be completely restored. Two of these are particularly to be kept in view and guarded against: one is the danger of relapse; the other, the possibility of the disease fixing itself in some way upon the constitution and becoming chronic. Neither the mother nor the doctor can therefore now rest from labor; on the contrary, both should redouble their watchfulness and activity.

NEGLECT OF THE CONVALESCENT.

The sick are better cared for than the convalescents. During the stage of recovery, the physician, pressed by other and more critical cases, is too often apt to neglect that close surveillance over the little patient, whom he

believes on the high-road to recovery, which ought ever to be exercised. The mother relaxes her attention because she is not aware of the extreme importance of careful scrutiny and skilful nursing to the welfare of the child during this the waning period of the disease.

The time the child should be confined to the bed and to the room, the diet, and the amusements, are all matters of moment, in regard to which we have a few words of counsel.

PERIOD OF CONFINEMENT TO THE BED AND ROOM.

The tendency in most families is to keep the convalescent child too long in bed, and to confine it afterwards too long to the sick-room. It is difficult to convince them that such confinement is useless, if it be not hurtful, in many cases. Undoubtedly during the continuance of fever, when complete repose is required, the bed is a necessity. But it is well to raise the child early during the stage of recovery. The wishes it expresses on this subject, and its incessant motions in bed, are signs that it may be safely emancipated from the irksome embrace of the bedclothes. The child should of course only be kept up a short time the first day, and the manner in which it bears the change be noted as a guide for the future. If the child be very young, it is well to rest it upon some cushions or on the carpet, when it will quickly be noticed whether it enjoys and is benefited by the motion of its limbs. Prolonged confinement to the bed is injurious in various ways; the breathing is interfered with by the

pressure on the chest, the appetite languishes, and the bowels become constipated. It is well to bear these facts in mind when recovery sets in.

Prolonged confinement to the atmosphere of the sick-room retards recovery in many instances. It is very difficult to say exactly how soon the child should be taken into the outer air, the time depends upon the nature of the disease, the climate, and the season. Catarrhal and rheumatic affections require special precautions in this respect. The same is also true of scarlet fever and measles.

In *scarlet fever* particularly it is necessary to keep the little one in the quarantine of its room for a considerable time. The saddest consequences in the shape of convulsions and dropsy may, and often do, result during recovery from this disease, when children are exposed prematurely to the outer air, especially in a northern climate, and the cold season of the year. The child ought always to be confined to the room until after the twenty-first day, no matter how mild may have been the attack. During cold weather, it should not be permitted to leave the house under forty days. Dropsy is a common and very fatal attendant upon scarlet fever. The exciting cause is premature exposure to cold and moisture. If the patient be not allowed to run about the house, where there is constant danger from the drafts through open windows and doors, nor taken to walk or ride in the outer air until after the twenty-first, or, in cold weather, the fortieth day, it will escape this dangerous implication.

Measles do not require a sojourn so prolonged in the

chamber. The troubles which follow this disease are, with the exception of injuries to the eyes and ears, all located in the bronchial tubes and lungs. The condition of the breathing apparatus should, therefore, be carefully watched, and the child protected from colds. When, however, all symptoms of catarrh have disappeared, the child may be taken out on the twentieth day, provided the weather is favorable.

The passage of the child from the sick-room to the street should be a gradual one, not the event of a day. It ought first to be taken from one room in the house to the other, the rooms being alternately well aired, so that it may be gently accustomed to a change of air; then a short carriage-ride can be ventured on; the clothing must be warm, and only by degrees lessened in quantity as the child becomes familiar with the outer air; the walks or rides should be varied in direction in accordance with the daily wind, the shade, etc., and slowly increased in duration. All these precautions are important, but unfortunately often overlooked.

THE DIET OF THE CHILD DURING RECOVERY.

We have spoken at some length of the food and drinks required by the child during the attack of sickness; now we have a few suggestions to offer as to the diet required during recovery. This differs from the ordinary food of a well child only in its extreme simplicity and in the smallness of the quantities which are allowed at one time.

Cookery for convalescent children is not that of

those who are in health. It has nothing to do with that complexity and profusion of dishes which appear on our tables, to excite the appetite of the palate when that of the stomach has been satisfied, and to impose upon the stomach a task in analysis of which it is barely capable, good chemist as it is. The digestive powers of the little patient are fatigued by the trials through which it has passed; only food, therefore, simple in character and preparation should be permitted. All pastry and rich sauces are improper.

We will pass in rapid review some of the principal articles of food to which the preference should be given. First of all, *bread*, well cooked and sufficiently stale, pleases children, and affords useful exercise in mastication and digestible nutriment. It is much better than sweet cake, which often disagrees.

Eggs, fish, meat, the simpler vegetables, and ripe fruit constitute the bill of fare first to be allowed. But the value, nay, the safety of these articles, depends much upon the manner in which they are prepared.

Eggs make a happy transition from the paps and broths to solid food. The eggs must be entirely fresh, however; if at all stale, they will provoke indigestion. The greatest care must, therefore, be taken to get only those which are newly laid. *Let the egg be an hour old, the bread a day.*

The egg is best when soft-boiled. Place it for two minutes in boiling water, and keep it two minutes more in the same water (removed from the fire) at a temperature a little below the boiling point. Thus cooked, the egg makes an excellent and readily di-

gested food; all other methods of cooking it are inferior to this, as they harden more or less the white, and render it therefore less easy of digestion.

The flesh of *fish* affords an excellent article for the table of the convalescent. Here also it is absolutely necessary that there be not the least suspicion of a want of freshness. *Oysters*, during the proper season, are very useful, particularly when panned or roasted.

The white meats, chicken and veal, and the dark, beef and mutton, are most nutritious when broiled or roasted; the white meats should be well cooked, the dark be somewhat rare.

Among the *vegetables*, the potato, endive, spinage, and asparagus furnish an agreeable and healthful variety for the table of the convalescing child.

Stewed apples, pears, and prunes are articles of which the usefulness has been confirmed by long experience. In season, fresh fruit is very grateful and harmless. There is a popular dread of fruit as a cause of disease and death to children in the summer season, which is without foundation. Dr. Snow, the well-known Health Officer of Providence, Rhode Island, has shown the error of this view. Nearly all the mortality from summer complaints is among children too young to eat fruit and vegetables. The impure air which is breathed by children in the cities during the heated term, is a far more potent cause of sickness than the food that is eaten. Let the little ones, therefore, eat freely of fresh ripe fruits.

EXERCISE DURING CONVALESCENCE.

The child should return by slow steps to its ordinary daily exercise. A moderate daily exertion in walking, and active play, proportioned in amount to the strength, augments the physical powers and hastens their restoration to full vigor; exercise carried beyond this point exhausts them and retards recovery. Moderated exercise induces sleep, that which is exhaustive and injudicious produces sleeplessness and a condition of nervous excitement.

The *heart* of a child which has just passed through a long sickness is singularly excitable; it beats with more force and quickness. Too much fatigue at this period may lead easily to disease of the heart. The danger is particularly great when the period of convalescence coincides, as is often the case, with a rapid growth, for at this time the heart is peculiarly susceptible.

Passive exercise in the carriage, walking with slow steps, certain games in which a measured movement is united with an active sense of pleasure, all admit of graduation. If the child becomes pale, if it is covered with perspiration, if dark circles form around its eyes, and if it returns to its bed prostrated, it is evident that the proper limits have been passed, and that it is necessary to retrace the steps.

Convalescence is a sort of second creation. The functions show themselves timid, the organs present a new delicacy of structure, ordinary influences fatigue or completely exhaust them. This condition of the

body in all its parts calls for constant care. Repose is the first and the most imperative need of the system at this time.

After a severe illness it is better, if it be possible, for the city child to be carried into the country as soon as its condition will permit. There recovery will be more rapid and complete than it can be within the limits of a great city.

WHEN TO RETURN TO SCHOOL.

Finally comes the grave question, how soon the child may resume its school studies. The same precautions here are necessary that we have pointed out in connection with the resumption of the ordinary diet and exercise. Haste must be made slowly. A brain fatigued by a long illness must be rested for a long time. The restoration of the general health indicates only that the mind may have recovered its aptness; the memory has often received a blow that it needs several months to recover from. Above all, after an attack of typhoid fever a long mental rest is obligatory. There is not a physician of experience who cannot remember instances of the saddest results from a too early return to school after recovery from this fever.

CHAPTER II.

THE NURSING OF ADULTS.

SECTION I. THE SICK-ROOM. The structure of the sick-room—The furniture of the sick-room: Bedstead; Thermometer; Feeder; Medicine-spoon; Medicine-glass; Sick-tray; Lamp and saucepan; Nursery lamp; Stomach-warmer; Foot-warmer; Air and water cushions; Clothes cradle; Bedside pocket; Wicker baskets; Funnels; Porringer; Oiled-silk; Bandages; Sponges; Hand-bell; Bed-chair; Invalid-lifter; Invalid-wrap; The bed and bedding—The warming of the sick-room—The ventilation of the sick-room: The relation of atmospheric purity to temperature; An important hint—The light of the sick-room—Cleanliness of the sick-room—Twenty-four hours in the sick-room—Management in the sick-room—The petty cares and needs of the sick-room.

SECTION II. THE PERSON OF THE PATIENT. The care of the skin—The sponge bath—Acid sponging—Salt-water sponging—The warm bath—The hot bath—The cold bath—Local baths: The foot bath; Acid foot bath; The hip bath; The shallow bath—The dripping sheet—Cold affusion—The douche bath—Wet sheet packing—The wet compress—The plunge bath—Medicated baths: Sulphur bath; Compound Sulphur bath; Alkaline bath; Acid baths; Iodine bath; Borax bath; Creasote bath; Hemlock and starch bath; Artificial sea-water baths—The Turkish bath—The shower bath—The vapor bath—The dry heat air bath—The nurse's hands; How to clean them—The clothing of the patient—Exercise and sleep—How to secure sleep to the patient—To change the sheets under the sick—To change the clothing of the sick—To move the patient in bed—To carry the patient.

IN the chapter just closed, we have confined ourselves quite closely to the directions in nursing which apply more particularly to the sick-

ness of children. We have now before us, in the present chapter, the task of making plain to our readers the manner of properly managing the chamber and person of the adult sick intrusted to their charge. Convinced of the importance of the theme, we shall be minute, even to a fault, in our counsels.

I. The Sick-Room.

Every man who builds for himself a house should in its construction bear in mind the certainty that he and those dearest to him will at some time be afflicted with sickness or suffer from accidents. He ought, therefore, to provide for this contingency by constructing a room especially designed for "the sick-room." Such a room may be furnished and used as an ordinary bedroom so long as it is happily not needed by the sick.

This suggestion will be found a useful one. We will give some details of the best methods of carrying it out, and also of so arranging an ordinary room in a house already built that it may be most healthful and pleasant for the invalid.

THE STRUCTURE OF THE ROOM.

The larger the sick-room the better, provided the conveniences at command for warming and cleanliness are in proportion to its size. The ceilings and walls should be of a light or neutral tint, without figures or patterns. Bright and grotesque outlines

on wall and ceiling papers often, in nervous and febrile disorders, excite the fears or the curiosity of the patient and prevent sleep. It is better not to have walls papered at all. If papered, the paper should be glazed. Plaster is very little, if at all, better than paper. The best wall is that painted in oil. This admits of washing, and therefore of the removal of all the animal exhalations which collect on it.

The sashes of the windows should be tightly fitted, so that they will not rattle in the wind, and should open both from above and below, in order to permit of proper ventilation. It is well to have inside shutters, in order to better arrange the light. Both the shutters and the sash must have secure fastenings. It is preferable to have a removable key with which, if required, to close the fastenings, for, in some diseases of the brain, and during the delirium of fever, the patient may attempt to spring from the window in the temporary absence or sleep of the attendant. The windows should look out upon, when possible, a pleasant prospect, a garden or green fields. Shades are to be preferred to curtains.

The fireplace ought to be an open one. An open fire is the best ventilator yet devised. The chimney-shaft should be in the middle of a wall, and built high and wide. The current of air through the fireplace up the chimney carries off the products of combustion and breathing, and, in order to secure perfect ventilation of the room, it is only necessary to provide for the entrance of air from without. This may be accomplished by ventilators over the door or over the win-

dows, or by carrying up an air-shaft in the brick-work by the side of the chimney, or by running up an air-flue or tube of iron or zinc inside the chimney, with the opening near the floor, for it is better to have the fresh air enter near the bottom of the room. The grate should be of a good size and rather low, and no barrier be permitted to check the free passage of the air up the chimney.

The *door* of the sick-room ought to be a heavy one (not less than two inches thick), and hung securely, so that it will open and close as noiselessly as possible. A second or dumb door of baize, made to swing in the opposite direction, will be found useful in excluding noise. A ventilator is to be constructed over the door, or, what is better, openings fitted with slides, placed at the side near the floor.

We have already spoken, when treating of the chamber of the sick child, of the desirability of having two adjoining rooms, for the convenience and comfort of the nurse and invalid. This arrangement is unfortunately rarely possible, and all the good effects we claim for it can happily be secured by that proper attention to the ventilation and warming of the sick-room, the details of which we shall shortly point out.

THE FURNITURE OF THE SICK-ROOM.

It is preferable to have the sick-room furniture made of unpainted wood—as oak or walnut. The number of pieces should be as few as possible. There need be no wardrobe, clothes-press, or bureau, except-

ing a small one. A few tables are required; a small one on castors, so that it can be moved to the bedside when wanted; a larger and firm one for holding such bottles, dishes, etc., as are in immediate demand; and a third, if there be space, for a dressing table, over which may be hung a glass. Three chairs are sufficient, two ordinary ones, and an easy or invalid's chair. There should also be a lounge or inclining sofa. The washstand ought to be on castors, so that it may be placed at the side of the bed. This is of great convenience to the patient. The basin, bowl, and other articles on the washstand, are best of white earthenware or china.

The bedstead ought not to be more than three and a half feet wide. Iron is a better material than wood. By providing two such bedsteads, in cases of close confinement to the bed, the comfort and health of the patient are enhanced. Each bed should have its own sheets and blankets. The patient passes twelve hours in each, the entire bedding of the bed not occupied being hung up to air until it is necessary to "make" it again. The bedstead is to be placed at the side of the window, or between the two windows, with its head to the wall, so that it can be approached on either side. It should be low, in order that the patient may readily get in and out—an important matter. The height should be such that, when the patient is sitting up, his head should be on a level with the nurse's shoulder, to enable her to have full and free command of the person.

No trunks or bandboxes should be placed under the

bed to obstruct the circulation of air, still less should this space be made the receptacle for dirty linen.

A closet or cupboard is an almost necessary part of a sick-room. It had better be so high as to be out of the reach of children. In it are to be kept the requisite appliances and utensils in use, and, on a separate shelf, the medicines which are actually employed.

It is desirable, for purposes of cleanliness, that the carpet of the sick-room, if it have any, should not reach to the walls, but that there should be a bare space around it. It is convenient to have always at hand a piece of oil-cloth or drugget, with which to cover any portion of the carpet when called for. A painted or polished floor, or one covered with oil-cloth or matting, is much better for the invalid than a carpet, which collects and harbors dust and the sickly emanations from the body of the patient.

The *thermometer* must not be forgotten. It ought always to be found on the wall, hung at the height of the bed. It should be so made that it can be thrust into water, in order to ascertain the temperature of a bath.

The cupboard which we have described should contain a number of useful articles to aid in ministering to the wants of the sick. Among these are:—

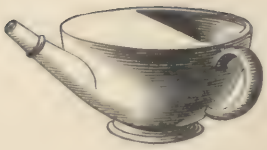
A Feeder.—This is a vessel of china or earthenware, the top of which is half covered. It is furnished with a spout and one or two handles (one for the nurse to hold by, and the other for the patient to guide the vessel with). This has many advantages over a cup

in administering broths, tea, or other fluids to the patient, who is propped up in bed, or obliged to drink in a recumbent position. It prevents the liquid from spilling over the clothes, and is more convenient for the patient to drink from.

A Medicine Spoon.—This is a covered spoon, with a lid in the cover and an opening near the end. The medicine is placed in the spoon, and the lid closed. The contents are swallowed through the opening without danger of spilling any. This is a very useful contrivance for giving medicine to children and to adults who are partially unconscious or much exhausted.

Medicine Glass.—Instead of giving medicine in a spoon—an uncertain measure, as spoons vary in size—it would be well if every sick-room were furnished with a graduated glass, now readily procurable, upon which is marked a teaspoonful, a dessertspoonful, and a tablespoonful (representing exactly the eighth, the fourth, and the half of a fluidounce). Perfect accuracy in dose is thus procured, much to the advantage of the patient and to the relief of the doctor, who is often fearful lest the spoonful of a powerful medicine he orders one day, or to one patient, should be given in a spoon containing double the quantity of that used for another day or another patient.

Sick-tray.—A tray supported upon legs, and hollowed out so as to fit the body, is very useful. It is placed upon the bed in front of the patient, who then sits, as it were, at his own table. It is much preferable to an ordinary waiter placed flat on the bed, or to a small stand at the side of the bed. Such a tray,



To face p. 427. FURNITURE FOR THE SICK-ROOM.

which can easily be made by a carpenter or tinman, is seen in the accompanying illustration.

A Lamp, Kettle, and Saucepan.—A small teakettle, with lamp and pan, will be found very convenient for keeping food or drink warm in summer-time, when a fire is not desirable during the night.

Hot water may readily be obtained by heating it in a tin cup over a gas-jet, or in a covered vessel fitted with a rim around the bottom in which to burn a little spirits of wine (alcohol.) By the use of the latter, water may be brought to a boiling point in a few minutes.

A useful nursery or night lamp is described by Prof. Parrish, and seen in the accompanying illustration.

In this apparatus (known as Fish's nursery lamp), the heat, communicated from the flame to the chimney, is made available for heating liquids. A, is a common kerosene lamp, with the peculiar burner necessary for the utilizing of this fuel; over this is ingeniously fitted a chimney of copper, B, around which is a vessel, C, of tinned iron; the outer surface of the copper chimney, constituting the inner surface of the vessel, is also tinned. This tinned vessel is provided with a handle and spout, and an earthen vessel, shown in Fig. 3 (in section at *g*, Fig. 2), is a useful though necessarily ill-shaped appendage for keeping liquids warm, or for heating them below the boiling point. In Fig. 1, the apparatus is seen with a metallic cover, and a small casting placed over it to support a tin cup or other vessel to be heated. At D, in the inverted dome, which supports the heating vessel, is an opening filled with a piece of mica, through which the flame may be inspected, and which, in using the apparatus as a nursery lamp, serves to throw out sufficient light into the apartment. A further advantage claimed for this as a chamber or nursery lamp, is

that the vessel, being filled with water, keeps, by its constant evaporation, the air of the room from becoming dry.

The usefulness of this lamp for keeping a supply of hot water at hand, and for keeping soups, tea, or other necessary preparations for the sick-room in a proper condition for the patient, will be apparent. This apparatus was employed with advantage in the hospital cars, so thoroughly fitted up by the United States Sanitary Commission for the care of the sick and wounded during our late war. In using it, however, we would call attention to the remarks on page 146, in reference to the dangers attending the combustion of kerosene oil—better employ lard oil.

Drinking-Glass.—An excellent drinking cup for the sick consists of an ordinary tumbler, placed in a circular wooden band, which is attached to two perpendicular bars, and can be made to move to and fro by the simple force of the mouth. A wooden plate is attached to the lower part of the drinking-glass to receive all waste fluid. By this simple invention, the difficulty connected with drinking in a horizontal position, and the staining of clothes by fluids contained in the glass, are avoided. The engraving represents the drinking-glass in action and at rest. It can readily be made by any one a little skilled in the use of tools.

A stomach-warmer is often useful. For this purpose an India-rubber bag or bottle should be provided, which is to be filled with hot water, and applied over the stomach when needed.

A foot-warmer is frequently required in sickness. A large bottle filled with hot water, a brick heated and wrapped in flannel, or a rubber cushion, or bottle for hot water may be used; one of these should always be ready for immediate wants. Earthenware bottles are made for this purpose, so that the feet can rest comfortably against the side prepared for their reception. (See DRAWING.)

The chamber ware of the sick-room should be kept in a commode. The "earth-closet" we have already described. No sick-room should open directly into a water-closet or a conservatory.

Curtains and heavy upholstery are receptacles for dust and the elements of disease. They should be banished from the apartment of the patient. The room should be made as cheerful and pretty as possible. The pictures on the walls should be of a pleasant character, and the furniture grouped in such a way as to produce an agreeable effect.

Pillow-Rests.—There should be in every sick-room two pillow-rests. They are much more convenient and comfortable for propping up pillows than foot-stools, books, rolled up coats, and other like substitutes, so frequently employed. A pillow-rest is a pillow made of the same width and double the length of an ordinary pillow, and stuffed hard with hay, straw, or horse-hair, or, what is still better, with oat-chaff, the back being six or eight inches high, and tapering down to a point, something like a writing-desk. On one or two of these the soft pillows are easily arranged.

Folding Rest for the Legs.—This is a simple contrivance for the comfort of the patient. It keeps the legs raised and supported. It is made like an open book, to fold and unfold at will, and is covered by a pillow or double blanket. This secures an agreeable change of posture, and thus goes far to prevent the dreaded bed-sores.

Support for the Back.—A small rolled pillow, about

the size of the wrist, and about half a yard long, is extremely useful as a temporary support to the back or sides.

Air and Water Cushions.—India-rubber cushions are made of various forms to be filled with air or water, warm or cold, and used to ward off pressure, afford support, etc. These are pictured on the annexed page.

No. 1 is made to contain air or cold or warm water, and to support any part or to be employed as a stomach or foot-warmer.

No. 2 is intended, when filled with air or water, as a seat in cases of piles or falling of the bowel.

No. 3 is to be distended with air or water, and placed under the hip or back so as to protect these parts from pressure when sore from constant lying.

Cushions made of old linen, in the shape of a ring and filled with bran, are useful to protect the ear or prominent bones from pressure. They are particularly needed when the patient is obliged to lie for a long time in one position.

A cradle for the bed is necessary in many cases of wounds and injuries. It consists of three half hoops, fastened together, which, when placed over the limbs or trunk of the body, support the bedclothes and prevent them from resting upon the sensitive part.

A bedside-pocket is convenient for fastening at the side of the bed to contain the patient's handkerchief, cologne water, or other articles he may want to use.

Several wicker-baskets should be provided with divisions or compartments. One of these—a small one—may contain the bottles from which the patient

is daily taking medicine. They are more secure from injury in such a basket than on a table or shelf. All medicines, as soon as discontinued by the physician, should *at once* be removed from the room, to avoid the possibility of mistakes. As also lotions and liniments for external use are sometimes, by mistake, given internally, it is safer to have a separate basket, of a different shape and color, to hold the bottles containing them. A couple of baskets for dishes, cups, and glasses are wanted; one, for articles needing washing, to be sent away and exchanged for the other with its clean freight.

Two funnels are required: one of glass for filling a bottle; the other, a larger one, of tin, for filling the rubber cushions or stomach or foot-warmers with water.

A *porringer*, graduated so as to mark the quantity of its contents, is useful to measure the exact amount of an injection given, and for other purposes.

Oiled Silk.—A yard or two of oiled silk must always be kept for the purpose of covering poultices, etc.

A *number of bandages*, made in the manner we shall describe in a future chapter, ought to be on hand, as an emergency may arise calling for their prompt use.

Plaster.—A yard or more of adhesive plaster and some isinglass plaster should also be provided in advance of the necessity for their employment.

Vinegar, *mustard*, *Cologne water* are to be kept in appropriate bottles.

Sponges.—Several are needed; a fine one for the face,

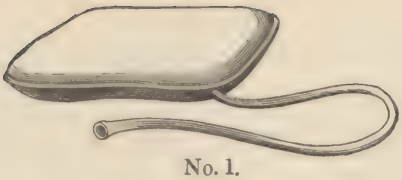
one for the bath, and a coarse one for soaking up slops, etc. There is also to be a supply of *castile soap*.

A *small hand-bell*, or gong, ought to be ready to place within the reach of the patient, in order that he may be able to summon or arouse the nurse.

A *bed-chair* for supporting the weak patient in a sitting posture in bed is a useful contrivance. An ordinary chair, placed on its side so that the concave back may support the patient, makes, when properly covered with pillows, a very excellent substitute for the more elaborate and expensive "bed-chair."

An Invalid's Lifter.—Feeble patients wish something by which they can help themselves from a lying to a sitting posture. In many hospitals, a cord is fixed to a staple in the ceiling over the bed, the handle attached hanging within the reach of the sick person. This is not convenient in a private house, and a simpler and quite ingenious contrivance has been devised for the same purpose. We give a picture of it in the accompanying cut.

It may consist of a rod of wood, brass, or iron, stretching between the foot-posts of the bedstead, and having on it a hollow roller over which works a flat web, with its ends fastened to a handle, and to a broad netted or otherwise made shoulder sash. When a patient, or even a stout heavy person, in health, for whom it is equally well adapted, wishes to rise, the sash is passed over the head across the shoulders, the web brought under the arms, and, by gently pulling the handle, the desired change of posture is effected. When a French bedstead is used, an upright strong lathe can be screwed on to the bedframe and fitted with a pulley or a roller like that of a jack-towel. Many bedsteads are constructed with a top bar over the footboard; a hollow roller can be fixed to this bar.



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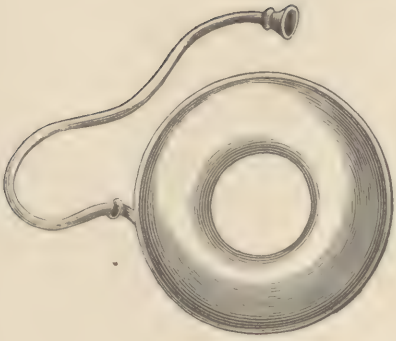

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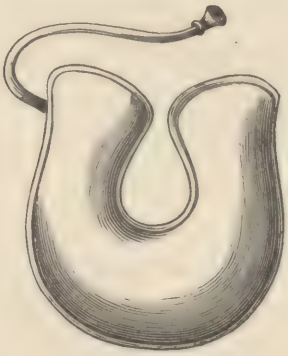


No. 3.

AIR AND WATER CUSHIONS (p. 430).

INVALID'S LIFTER (p. 432).

To face p. 432.

In fact, the principle admits of an endless number of modifications.

In order to enable any lady who may wish to knit such a lifter for her own or friend's family, we will give the exact directions: The knitted part is large, and fits on the patient's shoulders and chest like a shawl. The ends of webbing, carried around the pulley, are placed within reach, so that he can lift himself at pleasure. To knit, set on twenty-eight stitches, knit seventy rows; knit eighty rows, increasing one stitch at the sixth stitch of every row; then knit one hundred and sixty rows; then knit eighty rows, decreasing one at the sixth stitch of every row; then seventy rows, as at first.

A Wrap for the Invalid.—An excellent over-garment with which to cover the shoulders and body of the patient sitting in bed or leaving it for a few moments, is made like the Spanish poncho, as follows: Provide a square or somewhat oblong piece of fine flannel, tweed, or other woollen stuff, and cut a slit in the centre, long enough to pass the head through, which bind with ribbon or edging. For a tall person, the material should not be less than two yards wide by three long. The comfort afforded by this easy garment is very great.

THE BED AND BEDDING.

The bed should not be too hard. Special attention must be paid to making it level. For this reason, if there is a sacking-bottom, it should be freshly corded in order to secure a level support for the bedding. As the under bed of straw is apt to become uneven, it ought to be removed, or, if not, have a fresh supply of straw placed in the *middle*. A feather or wool bed

should be gently pressed and spread evenly and covered with a mattress, made of horse hair overlaid with the best long wool. One or two blankets smoothly placed over the hair mattress conduce to the comfort of the occupant of the bed. The mattress should be made to fit within the bedposts, so that it can easily be turned daily, if possible, from side to side and from the head to the foot.

The sheets and blankets should be large enough to admit of their being neatly and tightly tucked under the mattress. If they be too small, it is impossible to keep everything smooth and straight about the patient.

The pillows, cases, and sheets should be frequently changed, especially in fevers. For the sick, they are best made of cotton, which does not feel so cold when moistened by perspiration as linen. The only bed-covering should be light pluffy blankets. Heavy counterpanes and comfortables distress the patient very much by their weight.

In regard to the *arrangement of pillows*, Florence Nightingale makes a most judicious observation, which we feel obliged to quote: "Every weak patient, be his illness what it may, suffers more or less from difficulty in breathing. To take the weight of the body off the poor chest, which is hardly up to its work as it is, ought, therefore, to be the object of the nurse in arranging his pillows. Now, what does she do, and what are the consequences? She piles the pillows one on top of the other like a wall of bricks. The head is thrown upon the chest, and the shoulders are pushed forward, so as not to allow the lungs room to expand. The pillows, in fact, lean upon the patient, not the patient upon the pillows. It is impossible to give a rule for this, because it must vary with the figure of the patient; and tall patients suffer much more than short ones, because of the *drag* of the long limbs upon

the waist. But the object is to support, with the pillows, the back *below* the breathing apparatus, to allow the shoulders room to fall back, and to support the head without throwing it forward. The suffering of dying patients is immensely increased by neglect of these points. And many an invalid, too weak to drag about his pillows himself, slips his book or anything at hand behind the lower part of his back to support it."

THE WARMING OF THE SICK-ROOM.

As we have already stated, the best way of warming a sick-room is by means of a low-down grate. Either soft or hard coal may be burned in it. A properly constructed and cared-for grate will give off alone sufficient heat to keep the room comfortably warm. For other methods of warming, and the precautions to be observed, we refer the reader back to a previous chapter on the subject (see page 153).

Ordinary illuminating gas has of late been much used as a fuel for heating and cooking purposes. The *gas-grate* is very handsome and convenient. A number of gas jets are constructed in the grate so as to play upon soft coal, or lumps of graphite obtained from the gas-works. The fire is a cheerful and hot one, readily kindled, increased, or diminished, and avoids the noise and dust attendant upon keeping up the usual fire. Its only disadvantage is the expense.

The gas-stove, properly constructed (so that all the products of combustion are carried up a chimney by a strong current of air, and so that the outer case and jacket shall be heated only by the hot air surrounding the inner case, and not directly by the flame), affords a valuable and not expensive method of heating a room.

The *temperature* of the room requires careful regulation by means of the thermometer. In winter as high a temperature cannot be borne in the sick-room as in summer, yet we find that the tendency is to make the room warmer, because the outside air is cooler. From 60° to 63° is ordinarily the proper temperature. In cases of consumption and other diseases of the respiratory organs, the temperature may be as high as 65°; this is the degree of warmth at which the wards in the Brompton Hospital for consumption, London, are uniformly kept. In cases of brain and nervous disorders and of high fevers, particularly at their commencement, a cooler atmosphere is preferred, rarely, however, lower than 55°.

The temperature should not be allowed to *fall* during the night, for this interferes with sleep. It is also to be remembered that the patient is apt to be chilly and cold in the morning, particularly after a restless feverish night. The warmth of the room must therefore be looked to in the early morning hours, and, if necessary, the foot-warmer prepared and comfortably adjusted.

When the air becomes dry through the continued use of fire in the chamber, it may be pleasantly moistened by attaching some tubing to the spout of a boiling teakettle. The steam is readily conducted to any part of the room where it may be desired. In summer time, the hot dry air may be cooled and moistened by placing two or three hand-basins filled with ice-water near the open windows, or door if the outer air be too sultry for direct admission, so that the current of air may pass over them in entering the room.

The same object may be accomplished by keeping a muslin shade wet by means of a syringe.

THE VENTILATION OF THE SICK-ROOM.

The sick-room should be ventilated, if possible, by what is known as "base ventilation;" that is, the fresh air should enter and the impure air pass out near the floor. We know this is contrary to the common opinion, which is that ventilation is best effected at the top of the room, the general impression being that by giving near the ceiling an outlet to the heated air it will rise and carry off all the foul vapors. The incorrectness of this view has been fully demonstrated by repeated and extended experiments. In the wards of the Philadelphia Hospital under the charge of the Guardians of the Poor, the method of base ventilation has been tried with the most marked success. From the late report of the President of the Board we learn that all the wards in the extensive buildings of this institution are warmed and ventilated on the same general plan. The heat is admitted in all cases near the floor, each ward having its own independent hot-air chambers and flues. The flues for ventilation open only very near the floor and pass out at the roof, each ward having its own. There is no opening in any ventilating flue near the ceiling. To secure good ventilation in summer, heat is introduced into all needed parts of the house twice a week for two hours each time, and oftener if required. This warms the ventilating flues so that they draw all the time and the

wards are kept sweet. It has been found by experience in this hospital that if fresh air is desired from a window, it is better to raise the window from the bottom than to lower it from the top, as the latter seriously embarrasses the ventilation from the floor. When the cholera visited the insane department of the institution, in 1866, it was the most fatal in those wards where there was a strong ventilation from near the ceiling and none from the floor; on bringing down the ventilation, the cholera disappeared. It is stated that not a single case originated or occurred, unless brought in, in any ward of the hospital where there was a thorough ventilation from the floor, or an open fireplace and chimney.

To let the heat escape, some advocate ventilators near the ceiling or the lowering of the upper window-sash. This accomplishes the purpose, if the openings be large enough. Unfortunately, however, much of the pure air also passes out, and much of the foul air remains near the floor. When the room is too hot, the best way of cooling it is to check the fire in the grate or in the furnace in the cellar, and open the doors and raise the windows. The apartment will thus be cooled without interfering with its ventilation.

It must be remembered that there can be no thorough ventilation unless fresh air, either warm or cold, is freely admitted. When admitted through a *raised* window or open door, the Philadelphia Hospital attendants find it increases the force of the ventilation, as the air in the upper part of the room still acts with considerable pressure upon that near the floor.

The system of heating and ventilation we have just described, has been productive of the happiest results in both the medical and surgical wards of the hospital. For the best methods of carrying it out in private dwellings, we refer our reader back to our article on "The Ventilation of Dwellings," on page 149.

THE RELATION OF ATMOSPHERIC PURITY TO TEMPERATURE

Pure air is not necessarily cool air, nor is cool air necessarily pure. Yet this is the common opinion. The great object of ventilation is to get the air pure without having it chilly. The air in the room and house ought to be as fresh and healthful as that out of doors, but not as cold in winter nor as warm in summer. You may make a room cool without ventilating it, and may keep a room warm with the air fresh and pure.

If there is no other way of changing the air in the room and removing foul emanations, cover the patient up warm in bed, putting hot bottles to the feet if necessary, and then throw open all the windows and doors. There is no danger of his taking cold when properly covered in bed. There is great danger of his being poisoned by a foul close atmosphere.

It has been well observed that those "nurses who make the greatest outcry against open windows, are those who take the least pains to prevent dangerous drafts. The door of the patient's room *must* sometimes stand open to allow of persons passing in and out, or heavy things being carried in and out. The careful nurse will keep the door shut, while she shuts the

windows, and then, and not before, set the door open, so that a patient may not be left sitting up in bed, perhaps in a profuse perspiration, directly in the draft between the open door and window. Neither, of course, should a patient, while being washed, or, in any way exposed, remain in the draft of an open window or door."

In the case of a small room it is, of course, more difficult to avoid drafts than in a large one. But with a little forethought and management, the patient may be kept out of all currents of air.

AN IMPORTANT HINT.

It is of the utmost importance to the salubrity of the sick-room to remove from the neighborhood of the sick person, as soon as they are produced, all the emanations and secretions from his own body. Not only does the atmosphere of the room become charged with poisonous matter, but everything in contact with and surrounding the patient absorbs the secretions of his skin and lungs, through which the principal portion of the depraved matter generated in disease is got rid of.

A slop-pail has no right to be in a sick-room. All the dishes and utensils should be washed outside, being carried out in a basket provided for the purpose.

Every opportunity should be taken to air the bedclothes. When the patient leaves the bed only for a few minutes, the covers ought to be thrown back and exposed to the air.

Neither wet towels, moist flannels, nor damp sheets

are ever to be dried in the sick-room. Blankets and linen are always to be warmed and thoroughly dried before putting them on the bed.

THE LIGHT OF THE SICK-ROOM.

A light room is as necessary as a well-ventilated room for the sick. In our chapter on healthy dwelling-houses we spoke at some length of "light and the means of lighting." We need not, therefore, repeat our advice in this connection. There are some affections of the brain and nervous system, and of the eyes, in which a subdued light, or even a dark room, may be necessary for a while. Even in these cases, however, the apartment should have a southeastern exposure, and the light modified or excluded by blinds and shades. During the early and active stages of many diseases, a very bright light is too exciting. But in most affections, and always during convalescence, a cheerful, bright room is most beneficial. The chamber should not only be light, but accessible to the direct rays of the sun—particularly in the morning and at mid-day.

A pleasant prospect from the windows enlivens and diverts the patient. During convalescence it is therefore often desirable to move the bed so that the occupant may look out upon the sky on familiar scenes.

In illustration of the craving frequently felt by the sick to see outdoors, the following case is related on reliable authority: A man received an injury to the spine from an accident, which after long confinement

ended in death. He was a laborer, and had not in his composition a single grain of what is called "enthusiasm for nature," but he was desperate to "see once more out of the window." His nurse actually got him on her back, and managed to perch him up at the window for an instant "to see out." The consequence to the poor nurse was a serious illness, which nearly proved fatal. The man never knew it, but a great many other people did. Yet the consequence in none of their minds, apparently, was the conviction that the craving for variety in the starving eye is just as desperate as that for food in the starving stomach, and tempts the famishing creature in either case to steal for its satisfaction. No other word will express it but "desperation." "And it sets the seal of ignorance and stupidity just as much on the attendants of the sick if they do not provide the sick-bed with a view, and the patient with variety in the objects for his contemplation, as if they did not provide the hospital with a kitchen."

Recovery takes place more quickly in a room open to the direct rays of the sun than one from which the sunlight is excluded. Dr. Boswell Reid, the ventilator of the House of Commons, gives a marked illustration of this fact. He found, after inhaling a variety of poisonous gases and vapors, that he recovered more quickly from their effects when exposed to the full light of the sun than when he remained within doors in the shade.

CLEANLINESS OF THE SICK-ROOM.

The floor and walls, the bed and furniture of the sick-room, should all be kept scrupulously clean. The nurse who does not appreciate the importance of this statement, or who has not the energy or skill to secure its realization, is unfit to have charge of an invalid. "A nurse, when told that the way in which her patient's room was kept was quite enough to account for his sleeplessness, answered, quite good-humoredly, that she was not at all surprised at it—as if the state of the room, like the state of the weather, was entirely out of her power. Now in what sense was this woman to be called a 'nurse?'" It is the business of the attendants upon the sick to see to it that dust and dirt be not allowed to accumulate.

Sweeping of the room in the manner in which it is frequently conducted is a most disagreeable process to the eyes and throat of the poor sufferer. By throwing a few tea-leaves over a portion of the carpet at a time, and taking them up carefully with a handbrush and dustpan, all this may be avoided. Or, when there is no danger to the patient, a *well-trundled* wet mop may be gently passed over the carpet and under the bed. A part of the carpet may be noiselessly removed now and then and well shaken. A dirty carpet infects the air of a whole room, and renders nugatory all attempts at ventilation.

TWENTY-FOUR HOURS IN THE SICK-ROOM.

We will place ourselves at the side of the nurse, and endeavor to point out to her the principal duties of the twenty-four hours.

We will commence with the morning. The first thing is to notice the moment the patient awakes, and be ready with food and drink. A little coffee, or warm milk, or beef-tea will often prove most grateful now. Before taking this, the teeth and mouth should be washed, and the tongue, if it be heavily coated, gently scraped with a "tongue-scraper," or a large spoon. This cleaning of the mouth will add greatly to comfort, and enable the patient to taste his food. If medicine has to be taken at this time, it should follow, not precede, the coffee or other drink; if administered upon an empty stomach, it may nauseate. The patient now may doze again, and, perhaps, get his first refreshing nap after a restless night.

The right time for breakfast is the hour when the sick person is ready for it. He must not be awakened, for if he is asleep it is not yet breakfast-time for him, no matter where the hands of the clock may be. After breakfast the patient will probably feel sufficiently refreshed to be washed, combed, and made tidy. If he be very weak, he is to be sponged while lying down. A small soft sponge, wet in warm water, is to be passed gently over the face, neck, arms, and hands, without troubling him to make any motion or exertion. As each part is done, it is to be at once lightly dried with a soft, warm towel. If the patient be able

to bear the fatigue, the lower extremities, especially the feet, are to be treated in the same manner, only one limb being exposed at a time. Two or three minutes suffice to complete this duty, which, in a properly warmed room, can be performed without the least danger of taking cold. The temperature of the water may be gradually reduced as the patient gets better, until, finally, cold sponging be allowed. This daily sponging much refreshes the heated and wearied limbs.

The sheets and clothing of the patient may now be changed, the room ventilated, and the patient left to himself. He may, if permitted by the physician, see, at this time, a member or two of his family on any necessary business. Food and medicine must be carefully given at the hours directed. No patient should be long without nourishment—the less that can be taken, the oftener the necessity of taking it. Do not offer the patient the *same* dietetic preparation he has once refused. Prepare the same, or some other article, fresh, and serve it in as tempting a way as may be.

In the afternoon, the invalid wants to be diverted. He is tired and ennuied. A few visitors, if any be allowed, may now be admitted. As soon as they have gone, bathe the temples, chafe the limbs, and endeavor to induce sleep.

Again, food and medicine. Then arrange the room, and collect what is wanted during the night so that the patient may not be roused after he is ready to sleep. To disturb him then is to imperil his rest during the whole night.

The principal duty when night comes is to observe a profound silence, and to preserve the temperature of the room at the same point as during the day. Let the nurse be careful, therefore, if the room is heated by a fire in it, that enough coal be brought up to last until morning. Place within reach of the patient a hand-bell, his drink, and his spit-cup if he have a cough.

The early morning hours, from two or three to five or six o'clock, are the critical hours of the twenty-four. At this time, in cases of much exhaustion, the nurse should be on the alert and administer at short intervals the nourishment and stimulants directed. Neglect to support the system during these hours by food and drink, given at short intervals, has caused the death of many a patient who might otherwise have been tided over this period of depression and saved. He has passed away while the nurse has sat in thinking, if thinking at all, that he was in a "beautiful doze."

There is no need of arousing the patient to give him food and medicine, unless he is very weak. When still strong, as at the beginning of an illness, his best restorative is sleep.

Towards early morning, also, the weak patient is apt to get cold. If not carefully watched, the loss of heat may be fatal. Whenever, at this time, in exhausted conditions of the system, a tendency to chilling is observed, hot drinks should be promptly given, the room made warmer, and hot bottles or bricks and warm flannels applied to the extremities.

MANAGEMENT IN THE SICK-ROOM.

The task of *managing* a sick-room, of "taking charge" of it, is not an easy one. It requires memory, forethought, judgment. Yet it is the special duty of the nurse, who is the overseer or superintendent of the chamber and all that goes on within and without it bearing upon the welfare of its occupant, to *manage* nicely. She must not merely know how to warm and ventilate the room properly, but she must see that daily provisions are made looking thereto. She must not only know and perform her own duties, but also be able to arrange for the care of the patient by others during the periods, however short they may be, she is necessarily absent from the apartment. She should call to mind, before leaving the patient's bedside, what he may want during her absence, and see that it is given him; she should think what may happen to him from the intrusion or carelessness of others and guard against the danger; she should provide, in other words, for the going on of everything in her absence, in the same manner as though she were present. This can only be accomplished by thought, by *fore*thought. An intelligent person, with a little practice in looking into the immediate future and noting its routine wants and possible contingencies, can soon acquire the tact of so arranging that during no moment in her absence shall the patient be without her protecting care, for she has *provided* for the performance of every duty by others while she is away.

THE PETTY CARES AND NEEDS OF THE SICK-ROOM.

There are many little matters often overlooked in the sick-room. One of these is, the prevention of unreasonable interruption and noise.

It often happens that the patient who has just fallen asleep is rudely aroused by the abrupt entrance of some one into his room—some one meaning kindly, who did not know he was asleep. Locking the door is not a sufficient protection against such intrusion; the noise made in trying it will arouse and disturb the sufferer. A very simple means is always at hand, however, of effectually overcoming the difficulty. Tie a quill to the door-knob; then, when the patient is asleep, or for other reasons it is desired to exclude others from the chamber, pass the feathery end through the key-hole. Everybody should be instructed to strictly regard this sign, and on no account try the handle or knock on the door when it is present.

Loud noises are usually prohibited in the sick house. But trifling and annoying noises are not so carefully looked after. To one of these, Florence Nightingale, with her extreme thoughtfulness in small as well as great matters, forcibly calls attention as follows:—

"I have often been surprised at the thoughtlessness resulting in cruelty, quite unintentionally, of friends or of doctors who will hold a long conversation just in the room or passage adjoining to the room of the patient, who is either every moment expecting them to come in, or who has just seen them and knows they are talking about him. If he is an amiable patient, he will try to occupy his attention elsewhere, and not to listen—and this makes matters worse—for the strain upon

his attention, and the effort he makes are so great that it is well if he is not worse for hours after. If it is a whispered conversation in the same room, then it is absolutely cruel; for it is impossible that the patient's attention should not be involuntarily strained to hear. Walking on tiptoe, doing anything in the room very slowly, are injurious for exactly the same reasons. A firm, quick step, a steady, quick hand, are the desiderata; not the slow, lingering, shuffling foot, the timid, uncertain touch. Slowness is not gentleness, though it is often mistaken for such; quickness, lightness, and gentleness are quite compatible."

Rustling of the dress, rattling of keys and of plates and spoons on an uncovered table, frequent and noisy opening and closing of doors, creaking of window-sashes or of shoes, hurrying and bustling movements about the room, speaking to the patient suddenly or from behind him, or at a distance, or from the outside of the door, or when he is walking or standing—all these are more or less hurtful, and therefore to be avoided and guarded against.

II. The Care of the Person of the Patient.

We have hitherto occupied ourselves with directions as to the care of the room of the patient. We have now something to say as to his person. The bathing, sponging, clothing, exercise, and sleep of the invalid demand intelligent action on the part of his attendant. Like a child, he is too weak to look after his own wants in these respects. He stands in need of the motherly oversight of the nurse.

THE CARE OF THE SKIN.

The skin of the patient demands our first attention. The proper method of sponging the patient in the morning we have just described. This daily sponging is necessary, for in sickness the action of the skin-glands is deranged and their secretion increased. This morbid secretion ought not to be allowed to remain in contact with the body, obstructing the attempts of nature to relieve herself through the skin, and giving off foul emanations to be inhaled to the injury of the system. The feeling of comfort experienced by the sick after the judicious cleansing of the skin is very great. Nor is this all. The patient is positively invigorated by the removal of that which was oppressing the vital powers.

We reiterate the importance of exposing only a small portion of the body at one time while washing. If this precaution be heeded and drafts avoided, there is no danger of any injury resulting.

THE SPONGE-BATH.

When the patient gets a little strong, so that he can help himself, the following method of sponging will be found safe, pleasant, and healthful: Have a large basin of water of the temperature of 88° or 92°. As soon as the invalid rises let him remove his night-clothes and rub the surface of the body over with a soft *dry* towel whilst he is seated in or upon the edge of the bed. If he feel cold, rub until the surface

becomes warm. Now draw on some clothing over the feet and legs, and proceed to sponge the neck, breast, and shoulders with a large sponge, or with a piece of flannel. Use a little soap at first until the old, hard scarfskin is all washed off, and a new soft one is formed. Then soap will be no longer necessary, and, in cases of great delicacy of the skin may be hurtful. A vast quantity of the outer skin will come away in the first spongings, however *clean* the patient may have thought himself. After washing off the soap with some fresh water, dry the skin carefully with a *warm soft fluffy* towel, and then make friction with a coarse Turkish towel or glove, which is preferable to a flesh-brush. Rub the skin well for two or three minutes, until every part of it becomes quite red, then put on the flannel shirt, which is worn next the skin. Next, the lower half of the body is to be proceeded with, the stomach, hips, legs, and feet. More rubbing will be useful now than was used to the first portion, because the circulation is slower and more feeble in the lower than in the upper parts of the body. After the use of tepid water for a few mornings, its temperature should be lowered a degree or two each day, but never be cooler than 70° in summer, or 60° in winter. As soon as the convalescing patient is able to use water of this temperature he will derive benefit from its tonic action on the skin, and, indirectly, upon the respiration and digestion.

This daily sponging soon improves the spirits and elevates the mind, in consequence of the effete matter generated in the diseased body being got quickly rid

of, and the brain and nervous system, therefore, fed with healthier blood. Under its influence, also, the skin becomes softer and more permeable to the perspiration. Sponge-bathing is soothing and grateful in hot weather, when the patient is too weak to take a cold bath. It is also useful, as we shall point out when we come to treat of these affections, in various fevers and rashes.

ACID SPONGING

Is of value in many cases of fever and inflammation. Add one part of good cider vinegar to two or three parts of cold water, and sponge the body well with the mixture. The patient being weak and unable to move, the sponging must be done by degrees, as we have directed, that is, the arms, chest, and legs being rapidly washed in succession and quickly dried.

An acid mixture for sponging the surface of the body, when it is desirable to excite the skin powerfully, as in jaundice and long-standing diseases of the liver, is made as follows:—

Take of—
Muriatic acid, three fluidounces.
Nitric acid, two fluidounces.
Water, five fluidounces. Mix.

Add one-fourth of this to two gallons of water, for a sponge-bath. Make the whole of a comfortable warmth by first heating a portion of the water. Place both feet and legs in the water, and sponge the legs, thighs, insides of the arms, and over the region of the liver. This should be practised for ten or fifteen minutes, morning and evening. An earthenware or wooden foot-bath must be used, as the acid would corrode one of metal.

Salt-water Sponging.—A useful tonic sponge-bath is made by dissolving half a pound of bag salt in four gallons of water.

Where the skin is dry and harsh, as is frequently the case in diarrhœa, dysentery, and febrile disorders, the use of soft soap is desirable.

Whatever form of bath is used *as a bath*, it is still well to continue the tepid sponging of the patient in the morning, as long as he remains in the house.

THE WARM, THE HOT, AND THE COLD BATH.

Simple water baths are used for various purposes, and their effects vary with the temperature. We shall consider separately the warm, the hot, and the cold bath.

THE WARM BATH

Gently excites perspiration, and has a tranquillizing effect upon the system. If the object of the bath be to induce perspiration, it should have a temperature of 98° or 99°, as indicated by the *thermometer*, not by the hand. At this temperature the circulation is excited for the first few minutes, and then, if the water be not kept too hot, a feeling of languor, perhaps of faintness, steals over the patient, which, if he be very weak, must not be prolonged. The room and the bed must be kept warm, and after the bath he should be wrapped in warm clothing or go directly to bed. If the object of the bath be to tranquillize the system, to allay irritability or pain, to relax the muscles fatigued

by spasm or by severe exercise, to induce sleep by soothing the brain, then the temperature of the bath must be somewhat lower than the above. It may range from 92° to 98°, according to the feelings of the patient, *not of the nurse.* The patient should not be kept too long in the bath; from ten to fifteen or twenty minutes will be generally sufficient. In some cases of deep-seated pain, the period may be prolonged with benefit to half an hour or an hour. The bath must not be taken while the stomach is engaged in the work of digestion.

The bath is always to be covered with a blanket when the patient is in it. After a warm bath taken in the morning, the whole surface of the body should be briskly rubbed, otherwise chills will be felt later in the day; particularly if the invalid intends to go into the open air, this friction must never be neglected.

The warm bath is especially useful after any sudden chill; at the inset of a cold; after severe exertion of body or mind; after prolonged exposure to cold; after inward bruises; when a feeling of lassitude and general illness occurs; during times when epidemic diseases are prevalent; when the skin is hot, harsh, and unperspiring; during recovery from eruptive fevers, such as smallpox, measles, scarlet fever, diphtheria, and ulcerated sore throat; in painful affections of the limbs, liver, stomach, or bowels; in neuralgia and rheumatic affections; in cramps and convulsions; in nervous irritability, mental excitement, and sleeplessness.

The warm bath should be used with caution, and only

under medical advice, when the pulse is very weak, fluttering, or unequal, and when the breathing is much oppressed or embarrassed by disease of the heart.

The warm bath at a temperature of 95° must prove a cooling agent to the body of a fever patient at 100° or 105°. The immersion should continue from fifteen minutes to an hour.

In cases of delirium tremens with high fever, what is called *cold super-fusion* may be used while the patient is held in the warm bath. That is to say, from ten to thirty buckets of cold water are to be poured slowly over the head; hot water being continually added to the bath to maintain its heat at 95°. This treatment generally produces sound sleep.

THE HOT BATH

Is a powerful exciting agent. It quickens the pulse, hastens the breathing, reddens the skin, and, on withdrawing from the water, excites copious perspiration. The temperature of the hot bath is from 99° to 110°—generally, 102° is hot enough for all remedial purposes. It is a remedy powerful for evil as well as for good. Its use requires care, and ordinarily should only be taken under the advice of the physician. It sometimes will cut short a fever, relieve rheumatism, arrest an attack of bronchitis, and, in low relaxed conditions, act as a valuable restorative. The immersion ought rarely to be prolonged beyond five or ten minutes. If it lead to a sense of suffocation, headache, or rush of blood to the head, the patient is to be promptly re-

moved, or the heat reduced by the addition of cold water.

THE COLD BATH

Is rarely proper during the stages of active disease. The patient must be pretty well advanced on the road towards recovery, before he can venture upon its use. The system remains too weak and unreactive for some time after severe illness to reply with sufficient energy to the application of cold. Nevertheless, the cold bath, when properly used, aids in the restoration of the convalescent invalid. The temperature of the cold bath in *summer* should not be lower than five degrees below the temperature of the outer air, or ten below that of the room in which the bath is taken; in *winter*, the water may be raised to 60° or 65°—even to 70° or 75°. The feelings of the person at the time he is about taking the bath must be consulted. At times, he may shrink from immersion in water of even a moderate temperature, which, on other occasions, has been delightful to him. The forcing of himself into the cold bath, under such circumstances, is apt to be followed by chilliness and prostration; instead, he should content himself with a tepid bath or simple sponging.

LOCAL BATHS.

The *foot-bath* is employed with benefit in colds, coughs, asthma, headaches, and slight fevers. One or two tablespoonsful of flour of mustard, added to a gallon of hot water, will produce a lasting glow on the

skin, which will often relieve congestion of the head, and induce sleep in feverish cases.

Acid Foot-Bath.

Take of—
Nitric acid, four fluidrachms.
Muriatic acid, one fluidounce.
Warm water, four gallons. Mix.

To be used in a *wooden* or *earthenware* vessel. A valuable foot-bath in dyspepsia, with derangement of the liver and constipation of the bowels.

The *hip-bath* is useful in sciatica and irritable bladder. Mustard flour improves its action.

The *sitz-bath* is simply a hip-bath, with cold or hot water.

The Shallow Bath.—A bath tub, some six feet long, is to be provided, and water (of a temperature of 70° to 80°) placed in it to the depth of eight to twelve inches. The patient sits in this bath, the limbs and body being well rubbed by an assistant, while water is gently poured over the head. The bath ought to continue for five minutes to half an hour, until the heat of the body is lowered. The colder the water, and the shorter the stay in it, the more stimulating and less sedative will be the effect. This bath is less exciting than the cold affusion (see below), and is chiefly employed where the latter would be improper, as, for example, where there is much nervous irritability. It is also better for women, who seldom bear well the cold affusion.

THE DRIPPING SHEET.

This is a substitute sometimes used for the shallow bath. The patient stands upright in an empty bath, while the attendant, placed at his back, suddenly envelops him in a sheet dipped into water. The surface of the body is quickly rubbed by the attendant's flat hands for some three minutes, until the bather is in a glow; when a dry sheet is quickly substituted for the wet one, and the rubbing continued. The whole process should be over in five or six minutes.

COLD AFFUSION.

The patient is seated in an empty bath, and from four to six buckets of cold water (from 40° to 50°) are poured over his head and chest from a height of two or more feet. He is then quickly dried and replaced in bed. The colder the water, and the greater the height from which it is poured, the more stimulating the effect. Affusion, as thus practised, proves very valuable in the treatment of typhus fever. It is safe to resort to it when the heat of the body is permanently above its natural standard, when there is no feeling of chilliness, when the body is not wholly bathed in sweat, when there is not much irritability of the nervous system, and when there is great stupor. The effect is to lessen the heat of the body, to diminish the frequency of the pulse and the breathing, to render the tongue moist and soft, to decrease or

remove the stupor, to procure sleep, and sometimes to produce a critical perspiration. It may be used every twenty-four hours if necessary.

THE DOUCHE-BATH

When it is desirable to apply a douche-bath to one or more of the joints, it is only necessary to fasten two or three yards of large-sized India-rubber tubing to the top of a cistern or a water-spigot. The patient must sit in an empty bath, into which the water may fall as it plays upon the limb. Or, the water may be poured from a pitcher held over the part to a height of several feet. In this way, first hot water and then cold may be made to fall upon the affected part, so as to produce a brisk stimulating effect in long-standing joint troubles.

WET-SHEET PACKING.

The patient is closely enveloped in a sheet which has been dipped in cold or tepid water and well wrung out. He is then carefully wrapped in a blanket, covered with three or more blankets, and a down coverlet is tucked over all. He should remain thus for thirty, forty, or sixty minutes, lying on his side, or in a semi-recumbent position; the duration being timed by the sedative effect produced. The sweating is not generally excessive. At the conclusion the shallow bath, described above, may be used for two or three minutes as a tonic.

THE WET COMPRESS.

This consists merely of a roll of flannel or calico, dipped in cold water and wrung out, and then applied around the seat of pain. Over this a piece of oiled silk or muslin is to be worn.

THE PLUNGE-BATH

Is recommended after the wet-sheet packing and while the patient is perspiring. This treatment is useful in some cases where the patient is strong and vigorous, but it is a very dangerous procedure when there is delicacy of the internal organs.

MEDICATED BATHS.

Besides the warm, the hot, and the cold, general and local, baths which we have just described, other baths are employed in the sick-room, which are *medicated* in various ways. It is important that every woman should know how to prepare and use these medicated baths; we shall therefore give plain directions in regard to the preparation and employment of the principal ones, now commonly directed in medical practice.

Sulphur Bath.

Take of—
Sulphuret of potassium (liver of sulphur), four ounces.
Warm water, thirty gallons. Mix.
Useful in itch, lead colic, paralysis from lead, etc.

Compound Sulphur Bath.

Take of—

Sulphuret of potassium (liver of sulphur), four ounces.
Hyposulphite of soda, one ounce.
Sulphuric acid, one fluidrachm.
Warm water, thirty gallons. Mix.

Alkaline Bath.

Take of—

Carbonate of soda, one pound.
Warm water, thirty gallons. Mix.

Useful in long-standing scaly diseases of the skin, in obstinate rheumatism, in wandering gout, and gouty habits of body. Also in gravel, and in kidney and bladder troubles.

The following recipe may be used for the same purpose:—

Take of—

Carbonate of potash, four ounces.
Water, thirty gallons. Mix for the bath.

Acid Baths.

Take of—

Nitric acid, one and a half fluidounce.
Muriatic acid, one to three fluidounces.
Warm water, thirty gallons. Mix.

To be prepared in a *wooden bath tub.* The patient should remain in it for from ten to twenty minutes. Useful in cases where the liver is inactive, especially in invalids from a tropical climate, and those who have taken mercury. Employed in jaundice and in cases where the perspiration has a fetid or sour smell.

Or,

Take of—

Dilute muriatic acid, one and a half fluidounce.
Warm water (95°), thirty gallons. Mix.

Prepare in a wooden bath tub. This tonic warm bath is useful once a day in hysterical patients, to prepare them for a shower-bath.

Iodine Bath.

Take of—
- Iodine, one drachm.
- Iodide of potassium, one-half ounce.
- Solution of potassa (*liquor potassæ*), two fluidounces.
- Warm water, thirty gallons. Mix.

Useful in scrofula, long-standing rheumatic affections, and certain skin diseases.

Borax Bath.

Take of—
- Borax, four ounces.
- Glycerine, three fluidounces.
- Warm water, thirty gallons. Mix.

Useful in scaly and other irritable diseases of the skin.

Creasote Bath.

Take of—
- Creasote, two fluidrachms.
- Glycerine, two fluidounces.
- Warm water, thirty gallons. Mix.

Useful in scaly skin diseases.

Hemlock and Starch Bath.

Take of—
- Extract of hemlock (*conium*), two drachms.
- Powdered starch, one pound.
- Warm water, thirty gallons. Mix.

Useful in certain skin affections characterized by great sensitiveness and irritability.

Artificial Sea-Water Baths.

Take of—

Bay salt, two pounds.
Epsom salts, three ounces.
Iodide of potassium, two drachms.
Lime-water, one and a half fluidounce.
Water, thirty gallons. Mix.

This is a useful substitute for natural sea-water, when the latter cannot be obtained. It may be used hot or cold.

Another receipt for making an artificial sea-water, which closely resembles the natural, is the following:—

Take of—

Common salt, nine pounds.
Epsom salts, ten ounces.
Chloride of magnesia, eighteen ounces.
Chloride of potassium, four ounces.
Water, thirty gallons. Mix.

It is found that sea-anemones, and other denizens of the sea, will live and thrive in this imitation sea-water —a delicate test of its composition.

THE TURKISH BATH.

This is an elaborate process in which hot and cold water, heated air and vapor, friction and shampooing are combined. Before remarking upon its effects, we will give the description of it as it is practised in Constantinople, which method is more or less closely imitated in the various establishments for the purpose now in operation in most of our great cities.

1. The person is undressed in a warm apartment, and three or four towels wrapped around him. 2. He enters another room moderately heated, and nearly dark, and lies down on a mattress to undergo a delicate manipulation until the perspiration begins to start. 3. The attendant leads him into a room full of hot

watery vapor, lays him down on the back, removes the towels and kneels at his side; bending over, he gripes and presses the chest, arms, and legs, passing from part to part. He brings his whole weight down with a jerk, follows the lines of the muscles with his thumb, draws the open hand over the surface, particularly round the shoulder, stands with his feet on the thighs and chest, and slips down the ribs; then, up again three times; and lastly, doubling the arms one after the other on the chest, presses and rubs down the person with both hands. The bather is now turned on his face, and the operation repeated upon the back. The next act consists in sitting on the floor by the side of a vessel containing hot water, and being rubbed down by a flesh-brush in the form of a glove. Under this process the dirt is rubbed off from the skin of apparently the cleanest person in rolls and flakes. Soap and water are now used in the ordinary manner, and the bath is over.

Medical Effect of the Turkish Bath.—The bath is *useful* in removing local congestions; in clearing the pores, and in inducing a healthy condition of the skin and mucous membranes; in freeing the blood from noxious matters; in imparting a sense of elasticity and vigor to the system; in the first stages of a cold acquired from exposure; in long-standing rheumatism; in some inflammatory affections; and at the outset of a fever. It is *injurious* when there is any obstruction to the circulation of the blood; when the heart or vessels are affected with softening; when there are any symptoms of disease of the nervous system; when

there is a tendency to dizziness or fainting; and in advanced life. Women, during pregnancy or the monthly periods, should not employ it. More than one woman is known to have died in the Turkish bath in this country. It is, therefore, a remedial measure to be used with caution and discretion, and only when needed. The general effect of the hot air to which the person is first subjected in taking the bath, is to increase the force and rapidity of the circulation of the blood, and to induce free perspiration. If the air be too hot, or the stay in the hot-air chamber be too prolonged, the determination of blood to the skin and lungs becomes so great that the brain suffers. There is then a lessening of the heart's power and action, and a depression of the nervous force.

THE SHOWER-BATH.

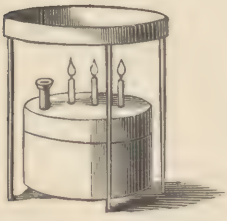
This bath, by the agreeable glow and reaction upon the surface which it produces, is of service in many cases when the patient is strong enough to react under its influence. Cold water is to be preferred, and salt-water may be used with benefit. Brisk friction of the skin with a coarse towel, or gloves, or a salt towel, should always follow the bath. An hour after breakfast is the best time for delicate persons; those in robust health may take it immediately on rising. The shower-bath is objectionable when there is weakness or disease of the heart or any other internal organ. In cases of fulness of blood in the head,

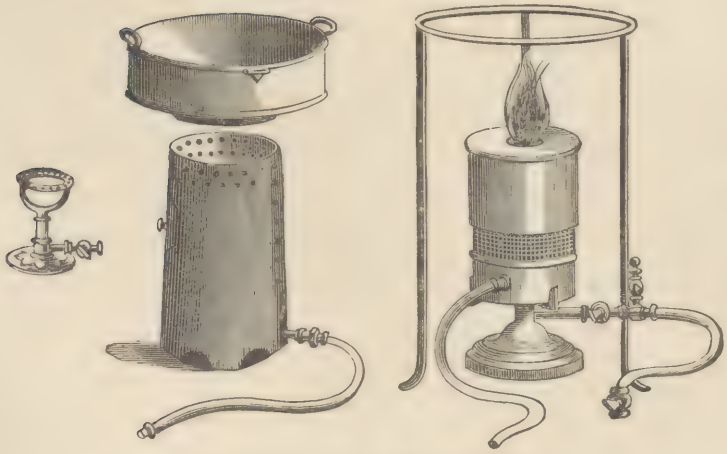
however, and also in long-standing bronchitis, it is often beneficial.

THE VAPOR-BATH.

A vapor-bath is of service in many cases of catarrh, bronchitis, pleurisy, inflammation of the lungs, rheumatism, fever, affections of the bowels and kidneys, and skin diseases. Either simple steam, or medicated steam, may be employed. A vapor-bath in which the steam of hot water alone is employed will open the pores of the skin and produce perspiration.

A simple apparatus may be gotten up at home at a very slight cost, suited to the administration of vapor-baths. All that is required is a flat tin box, having three or four short tubes soldered into the lid through which passes thick lamp-wick, and on the side a large tube stopped with a cork to allow spirits of wine to be poured in; and a flat, shallow dish, raised by legs of tin to a height a few inches above the wick of the box. The accompanying illustration shows a picture of the apparatus (the lamp for the spirits, tubes for the wicks, and the shallow basin for the water), from which any workman can construct one. To use this, pour alcohol into the box, and water into the dish (with any other substance which may be directed to medicate the bath), light the wicks, and place the patient in an open cane-bottomed chair, with one or more blankets drawn close around his throat, thrown over him so as to inclose the chair. Put the apparatus under the chair. When the water boils, its vapor will envelop the whole





Apparatus for the Vapor-Bath.

To face p. 466.

body, and in a few minutes produce free perspiration. After this bath, the patient wraps himself in a blanket and goes to bed, so as to continue to perspire for some time.

A few aromatic herbs thrown into the water, such as thyme, rosemary, marjoram, or lavender flowers, or a mixture of them, will pleasantly perfume the vapor and assist its effects. In the absence of the dried plants, a few drops of the essential oils, dissolved in alcohol, will answer the same purpose.

In those cases in which a long course of vapor-baths is ordered, the following apparatus, more convenient and quite readily constructed by any carpenter, has been recommended:—

Make a framework of wood to form a square inclosure; cover it with oil-cloth or other material, stretched on the framework, but leaving an opening at the top for the head. It should be large enough to inclose the patient while sitting on a cane-bottomed chair. To the upper part should be fastened a hood made of thick flannel, in such a fashion as to draw over the head, leaving only the face uncovered. The accompanying illustration will explain the arrangement.

When gas is accessible, a gas-lamp or furnace may be used instead of the spirit-lamp to generate heat under the shallow dish.

The patient can hold a thermometer in his hand, or, preferably, it may be fixed to the side of the framework, the bulb being inside and the graduated stem visible.

Such a covered framework and apparatus for a vapor-bath may be employed to take a dry heat air-bath.

THE DRY HEAT AIR-BATH.

This consists in the subjection of the whole surface of the body to hot dry air. The spirit or gas lamp placed, without the dish of water, in the inclosure described above, will heat the air to almost any temperature desired. Or a small room, with a window made to open at the top, so that the amount of heat can be regulated, may be used for the purpose of taking the hot air-bath. So soon as the air is heated to the desired temperature, as shown by the thermometer in the room, the patient undresses, and, with only a sheet thrown loosely around him, takes his seat. The weakly patient should commence with a temperature of 110°, which may be increased to 120° or 130°, or more. The point is to find the degree most agreeable to the feelings, and which will induce, gently and gradually, free perspiration, which may be continued for some time. If the temperature be too high, it produces a sense of oppression and distress, and cannot be maintained for any length of time. While remaining in the hot air, the patient may drink freely of cold or tepid water, if thirsty. The water drunk will increase the amount of perspiration. So soon as the bath is over, the perspiration having been kept up sufficiently long, the patient should be washed with hot water and soap.

This hot air-bath is of much service in long-

standing skin diseases, when associated with other remedies. It is also useful at the outset of a cold, and in gouty habits.

THE NURSE'S HANDS.

The nurse, while looking after the cleanliness of her patient's person, must not neglect that of her own. Her hands ought always to be scrupulously clean. To aid her in keeping them so, we give—

Miss Nightingale's Directions for Washing the Hands.—Compare the dirtiness of the water in which you have washed when it is cold without soap, cold with soap, hot with soap. You will find the first has hardly removed any dirt at all, the second a little more, the third a great deal more. But hold your hand over a cup of hot water for a minute or two, and then, by merely rubbing with the finger, you will bring off flakes of dirt or dirty skin. After a vapor-bath, you may peel your whole self clean in this way. What I mean is, that by simply washing or sponging with water, you do not really clean your skin. Take a rough towel, dip one corner in very hot water—if a little spirit be added to it, it will be more effectual—and then rub as if you were rubbing the towel into your skin with your fingers. The black flakes which will come off will convince you that you were not clean before, however much soap and water you have used. These flakes are what require removing, and you can really keep yourself cleaner with a tumbler of hot water and a rough towel and rubbing, than with a whole apparatus of bath and soap and sponge without rubbing. It is quite nonsense to say that anybody need be dirty. Patients have been kept as clean by these means on a long voyage, when a basinful of water could not be afforded, and when they could not be moved out of their berths, as if all the appurtenances of home had been at hand.

CLOTHING OF THE PATIENT.

The clothes of the invalid should be not only seasonable, but *beyond* the season. When he leaves his room, first let him begin with winter clothing, unless it be summer, when he should wear a spring suit. The under-clothing, in particular, must be warm; while heavy outer garments weigh down and oppress the weak invalid, extra flannel next the skin will keep him warm without fatiguing him. The feet and legs must be kept warm and dry by thick stockings and drawers. If he rides in cool weather, a foot-warmer should be placed in the carriage.

EXERCISE.

In the chapter on Exercise (p. 167) we have treated this subject at length, and, therefore, may dismiss it here with a few words.

The exercise of the invalid must be regulated, as to character and amount, by the organs affected and by his strength. In affections of the lungs, for instance, carrying weights or walking up a hill is injurious, as it taxes the strength and causes the heart to throw too much blood into the lungs. So, also, in these affections, rapid walking, and walking against the wind, are to be avoided. When the heart is diseased, active exercise must be used with caution. Indeed, in all cases active exertion must be approached slowly. Amusing games which do not call for violent motions, are the best forms of exercise with which the invalid can commence.

SLEEP.

The arrangement of the pillows on the sick-bed is a matter of prime importance, for it has much to do in driving sleep from the invalid's couch. The pillows should not be heaped up so as to throw the head forward upon the chest. When the patient can lie on either side, the pillow should be just thick enough to fill up the space between the head and the shoulder: a pillow should also be placed against the back. When a patient must sleep on the back, one pillow should be placed behind the lower part of the back, and with another the head supported so as not to be thrown forward.

The nurse must be careful that no part of the pillow or bed-covers projects over the mouth or nose. When the disease is paralysis or any lung trouble, the nurse should be particularly attentive that the breathing be not obstructed in this manner. To prevent it, she should watch the patient until he sleeps, and then, if he be very weak, frequently visit his bedside to see that the mouth and nostrils are entirely free. Undoubtedly many weak persons die from suffocation in this way, for, when the vital powers are much exhausted during low forms of illness, it takes but a slight obstruction to the entrance of air into the lungs to extinguish the spark of life. Such a patient, left in a calm sleep, is found dead in a few hours. The soft, yielding pillows, in which his head and face get buried, have suffocated him. This is no imaginary case: it happens oftener than it is pleasant to think of.

We have given (p. 186) a number of methods which may be employed to invite sleep to the invalid's bed. In addition, we append a number of receipts and specific directions suited to special cases of wakefulness.

When there is much mental excitement and forcible action of the heart, the application of *cold water* directly to the scalp is of service. This treatment is not suited to those patients whose wakefulness is due to exhaustion.

A warm foot-bath will often induce sleep in cases of nervous irritability—it is particularly serviceable with children.

Among the drugs which are employed as remedies against wakefulness (besides opium, chloral, garden lettuce, and hops, for the use of which see page 189), we may mention, with praise, henbane (hyoscyamus) and bromide of potassium.

Of the *tincture of hyoscyamus*, of which it is difficult to procure a good preparation, a teaspoonful may be taken in water at bedtime.

Better than henbane is the comparatively new salt now so well known to the non-medical public, the *bromide of potassium*. When sleeplessness is not caused by pain, this medicine is one of the most powerful and safe remedies we possess. It lessens the amount of blood in the brain, and brings quiet and refreshing slumber without any drawbacks. It is useful in those cases in which the face is flushed, the eyes suffused, and the head oppressed by a sense of fulness.

Take of—
Bromide of potassium, half an ounce.
Cinnamon (or common) water, two fluidounces (a wineglassful). Mix.

Of this, the dose for adults is a dessertspoonful (two teaspoonsful) fifteen minutes before the evening meal, and the same dose, or three teaspoonsful, repeated in the latter part of the evening.

TO CHANGE THE SHEETS UNDER THE SICK.

When the patient is too ill to be removed from the bed, it is important that the sheets should be changed quickly and dexterously while he is in the bed. We will suppose the sick man to be lying helplessly in the centre of his mattress. Spread the clean sheet, which has just been aired and warmed, upon the floor; roll one side tightly up half-way; then roll up one side of the sheet which is under the patient half-way, but in the opposite direction, close to his person; place the rolled part of the clean sheet alongside the rolled part of the dirty one, so that the unrolled half of the clean sheet shall occupy the place just uncovered by the rolling up of the half of the soiled sheet; turn the patient on his side, and push the rolled parts of the two sheets close under him; then gently let him fall upon his back over on the clean sheet, when the two rollers can easily be passed under the body, the one sheet coming off as the other is put on.

TO CHANGE THE CLOTHING OF THE SICK.

When desirable, the clothing of the patient can be changed without uncovering the person or raising the

head from the pillow. Pull the skirt of the bed-gown or chemise up from under the body of the patient, and draw the sleeves from over each arm. Place the arms of the patient in the sleeves of the clean gown, the body of which then throw over the head. Then, without lifting the shoulders of the sufferer from the bed, draw down and remove over the feet the soiled linen, and draw down and adjust under him the clean linen.

TO MOVE THE PATIENT IN BED.

In cases of extreme debility, a strong towel placed under the back and another under the lower part of the body assist greatly in changing the position of the patient in bed. The very sick, if allowed to lie too long in one posture, contract bed-sores, hence the necessity of moving them occasionally. To turn the patient on the side, have him extend himself as straight as possible, then, without touching his arms, place one hand under the shoulder-blades and the other under the small of the back, and turn him towards you. Of course, if the patient be very weak, he cannot lie on his side unsupported. It will be necessary to place against his back one of the pillow-rests we have described (p. 429), or a sheet tightly rolled up and tied. The invalid-lifter we have recommended (p. 432) is of great assistance in helping the patient to change his position and support himself.

The sick should be handled as lightly as possible. The hands of the nurse should be passed under the pillows in raising the head and chest. The person of

the patient should never be touched with cold hands. When it is necessary for the nurse to place her hands in contact with the skin of the patient, she should warm them, if they are at all cool, by holding them for a few moments in hot water.

When the nurse gets upon the bed to render assistance, the bedclothes should be so loosened that no weight or pressure shall be brought to bear upon the patient. No visitors should ever be allowed to sit on the side of the bed, for, by so doing, they tighten the clothes and irritate the person of the patient.

HOW TO CARRY THE PATIENT.

To carry a child is an easy matter. Few know how to properly lift and carry a grown person who is sick. The clothing to be worn while sitting up is to be adjusted before the patient is lifted. Place one arm under the bend of the knees, and the other round the back on a line with the armpits. Draw the patient well up against your chest, so that the head may rest on your shoulder. In this way the invalid, if not extremely heavy, may be carried from room to room, up stairs or down, without much exertion on the part of the carrier, and without injury to the burden. Carrying in a chair is awkward and unsafe. Putting the arms around the patient's neck, instead of supporting the back, often occasions severe pain.

CHAPTER III.

COOKERY FOR THE SICK.

CONTENTS.

The choice of common articles of food for the sick—Ladder of meat diet for invalids—Vegetable food needed by the sick—Jellies—The use of tea and coffee by the sick—The diet of health not that of sickness—The invalid's hours of meals—The preparation of common articles of food for the sick—Modes of cooking for the sick—Receipts for the sick-table: Nutritious beef-tea; Eggs, cream, and beef-tea; Gruel and beef-tea; Extract of beef; Essence of beef; A nourishing soup; Restorative soup; Strong broths for convalescents; Chicken broth; Lamb broth; Baked partridge; Broiled partridge; Broiled tripe; Calves' feet in milk; Mutton or veal broth; Chicken jelly; Vegetable soup; Soup tablets; Oyster soup; Broiled oysters; Panned oysters; Roast oysters; Stewed oysters; Scolloped oysters; Frozen oysters; Suet pudding; Suet boiled in rice-milk; Wine whey; Lime-water and milk; English milk porridge; Spanish cream; Soft custard; Directions for beating eggs light; Artificial ass's milk; Artificial goat's milk; Milk, flour, and iron; Brandy and egg mixture; Boiled rice; Macaroni and vermicelli; Rice pudding; Irish moss blanc mange; Caudle; Oatmeal mash; Corn meal gruel; Tapioca; Sago; Tapioca or sago with eggs; Corn-starch; Bran bread; Milk bread; Potato yeast; Corn bread; Bread pudding; Cracker pudding; Milk toast; Apple or other fruit with bread crumbs; Bread jelly; Gelatine jelly; Iceland moss jelly; Irish moss jelly; Iceland moss and bitter jelly; Calves' foot jelly; Slippery-elm jelly; Rice jelly; Sago jelly; Toast-water; Tamarind-water; Barley-water; Thin barley-water for drinks; Thick barley-water; Almonds and milk—Nutritious enemata: Beef-tea and cream injection; Cod-liver oil and bark injection; Quinine and beef-tea injection.

COOKERY has been called by Plato a form of flattery. A physician would be apt to term it a branch of pharmacy. The cook is often of more

service to the sick than the druggist. No nurse nor doctor should be ignorant of the art of preparing food and drinks for the sick-table. Food is medicine, but, like the drugs from the shop of the apothecary, it fails of its effects when improperly prepared.

The directions we give in this chapter for the choice and preparation of common articles of food for the sick, we have aimed to make as clear and practical as possible. Too often the receipts for cooking given in books on the subject are complicated, unnecessarily expensive, and wanting in important details. We have admitted none here which have not received the sanction of those of our own acquaintance whom we know to be competent and intelligent nurses. Many of them have never before been published.

THE CHOICE OF COMMON ARTICLES OF FOOD FOR THE SICK.

In the second chapter of this book, in the article on Food, we pointed out the relative nutritive powers and the dangers attending the various articles of diet—animal food, vegetable food, and spices and condiments. It remains for us in this connection to afford some guidance in the choice of common articles of food for the purposes of a sick-diet, and then to give specific directions as to the best methods of preparing them, so as to please the palate and support the strength of the patient.

We will commence by presenting the following

Ladder of Meat Diet for Invalids.

Whey.	Sweetbread.
Milk and lime-water.	Boiled partridge.
Plain milk.	Chicken.
Beef-tea.	Mutton.
Mutton broth.	Roast leg of mutton.

Milk is the most digestible form of animal food; the preparations from it furnish the most important articles of diet for the sick. Fresh milk is the most perfect food for extreme weakness. There is no stomach which will not bear it made into whey, or prevented from coagulating by the addition of lime-water. As we have already pointed out, it is most digestible when slightly warmed.

If milk, instead of being fresh, is given to the sick soured or changed ever so slightly, it proves most injurious. The utmost care should, therefore, be taken in this matter by the nurse.

Cream is of especial value in many long-standing cases of disease. It is often more readily digested than milk.

Skim-milk has been found of great value in certain kidney diseases, and *buttermilk* in fevers and persistent diarrhœa, as we shall see more at length when we come to speak of these diseases.

Butter, which is made up of the fatty elements of milk, is the lightest kind of animal fat. Although it is destitute of the sugar and some of the other ingredients of milk, it is both directly and indirectly a valuable article in the diet of the sick; directly, in

scrofula, consumption, and other wasting diseases, because of its fattening powers, and indirectly, because it enables the patient to take more bread.

Cheese, although it often disagrees with the sick, contains nutritive matter in a more concentrated form than any other article in general use as food. It is sometimes craved during convalescence, and then proves very useful.

An *exclusive milk diet* has been employed with much success in the treatment of persistent affections of the stomach, of diabetes, and of other long-standing diseases.

Next to milk, *beef-tea* is, as indicated in the "ladder of meat diet," the most digestible form of animal food. The nutritive qualities of beef-tea depend very largely upon the manner in which it is made; we, therefore, call especial attention to the receipt for making it, which will be found on page 490. Thus prepared, it will be found both agreeable and wholesome.

Mutton broth is a highly digestible article when well and *freshly* made. If "kept hot" for a number of hours, it loses its flavor, and is to be avoided as injurious. Next to it in digestibility comes sweetbread.

Mutton is said, by competent authority, to be of all meats, when roasted, the most digestible, because it is the closest grained, most friable, and least infiltrated with fat. A tender roast leg of mutton is ordinarily very grateful to the invalid. We might have placed it with propriety a little higher in the "ladder of meat diet for invalids."

Eggs sometimes disagree with invalids of a bilious

temperament. In such cases they can usually be taken whipped up with sherry wine. Another excellent plan, in these instances of delicate stomachs, is to reject the white and give only the yelk. Eggs are best digested when soft boiled.

VEGETABLE FOOD NEEDED BY THE SICK.

It must not be supposed that animal food is all the patient requires. He needs vegetables as well as meat. What Florence Nightingale, from her great experience, says of the English sick, is true also of the American, that "scorbutic sores have been actually known to appear among sick persons living in the midst of plenty in England, which could be traced to no other cause than this, viz., that the nurse, depending on meat alone, had allowed the patient to be without vegetables for a considerable time, *these latter being so badly cooked that he always left them untouched.*"

In regard to the articles chosen, the patient's "fancies" will often greatly assist the nurse. As a general rule, that which is eagerly craved for by the sick person is needed, and may be allowed.

The various preparations of arrowroot, tapioca, sago, corn-starch, and maizena (directions for the making of which we give a few pages hence) constitute nutritious and light articles for the sick-table.

Bread should always find a place in the sick dietary. Many persons prefer homemade bread to baker's; their wishes in this respect should be consulted.

"Whole meal bread," or bran bread, used occasionally or daily, will often take the place of laxative medicines, and keep the bowels in a proper condition.

JELLIES

Are doubtless frequently abused in the sick-room. On this account Florence Nightingale is much opposed to their use. She says: "Jelly is an article of diet in great favor with nurses and friends of the sick; even if it could be eaten solid, it would not nourish, but it is simply the height of folly to take one-eighth of an ounce of gelatine and make it into a certain bulk by dissolving it in water, and then to give it to the sick, as if the mere bulk represented nourishment. It is now known that jelly does not nourish, that it has a tendency to produce diarrhœa; and to trust to it to repair the waste of a diseased constitution is simply to starve the sick under the guise of feeding them. If one hundred spoonsful of jelly were given in the course of the day, you would have given one spoonful of gelatine, which spoonful has no nutritive power whatever. And, nevertheless, gelatine contains a large quantity of nitrogen, which is one of the most powerful elements in nutrition; on the other hand, beef-tea may be chosen as an illustration of great nutrient power in sickness, coexisting with a very small amount of solid nitrogenous matter. The reason why jelly should be innutritious, and beef-tea nutritious, to the sick, is a secret yet undiscovered,

but it clearly shows that careful observation of the sick is the only clue to the best dietary."

Still, we would not banish jelly from the sick-room.

Although it cannot be depended upon alone to nourish the patient, it acts admirably in connection with other articles by giving a flavor and relish to the meal.

THE USE OF TEA AND COFFEE BY THE SICK.

In regard to the use of *tea and coffee* by the sick much has been written. We can record here with approval the words of the distinguished English philanthropist and nurse from whom we have just quoted: "A great deal too much against tea is said by wise people, and a great deal too much of tea is given to the sick by foolish people. When you see the natural and almost universal craving in the sick for their 'tea,' you cannot but feel that nature knows what she is about. But a little tea or coffee restores them quite as much as a great deal, and a great deal of tea, and especially of coffee, impairs the power of digestion they have. Yet a nurse, because she sees one or two cups of tea or coffee restores her patient, thinks that three or four cups will do twice as much. This is not the case at all; it is, however, certain that there is nothing yet discovered which is a substitute to the patient for his cup of tea; he can take it when he can take nothing else, and he often cannot take anything else if he has it not. I should be very glad if any of the abusers of tea would point out what to

give to a patient after a sleepless night instead of tea. If you give it at five or six o'clock in the morning, he may even sometimes fall asleep after it, and get, perhaps, his only two or three hours' sleep during the twenty-four. At the same time, you never should give tea or coffee to the sick, as a rule, after five o'clock in the afternoon. Sleeplessness in the early night is from excitement generally, and is increased by tea or coffee; sleeplessness which continues to the early morning is from exhaustion often, and is relieved by tea. The only patients I have ever known refuse tea have been typhus cases, and the first sign of their getting better was their craving again for tea. In general, the dry and dirty tongue always prefers tea to coffee, and will quite decline milk, unless with tea. Coffee is a better restorative than tea, but a greater impairer of the digestion. Let the patient's taste decide. You will say that in cases of great thirst, the patient's craving decides that it will drink *a great deal* of tea, and that you cannot help it. But in these cases be sure that the patient requires diluents for quite other purposes than quenching the thirst; he wants a great deal of some drink, not only of tea, and the doctor will order what he is to have, barley-water or lemonade, or soda-water and milk, as the case may be."

THE DIET OF HEALTH NOT THAT OF SICKNESS.

The diet best calculated to keep a person in health is not always that best suited to restore the sick.

Beef, for instance, which is so wholesome and strengthening to the well, cannot be eaten by the sick, whose weakened powers of digestion cannot act upon it. On the other hand, beef-tea, upon which a man in health will lose flesh and strength, proves the most nutritious of all articles of food for the invalid. Chemistry will not explain the reason for this difference. The condition of the patient's stomach solves the problem, for it is not that which is taken into the stomach which nourishes, but that which, when there, is digested and assimilated. It is not, therefore, the amount of nutriment in the food so much as the amount which the digestive apparatus is able to extract from it, which is of value. The digestibility of food by the sick can only be determined by experience and observation. Here we see that this question of the choice of articles of food for the sick is one which must be studied separately. No acquaintance with chemistry, and no knowledge of the values of different foods in health, will alone enable the nurse or physician to administer properly to the wants of the sick or convalescent. Those articles must be chosen, and those methods of preparing them selected, which extended observation has shown to be of most value. It is the result of this observation which it is our object here to record.

We would also inculcate upon those having charge of the sick to note carefully the effects of the food given them; upon this much depends. The nurse's duty in this respect can be performed by no one else. The physician, who sees the patient only at intervals, cannot watch the direct influence of his diet;

he can merely tell whether there is progressive increase or loss of strength. The nurse should closely observe the immediate effects of the diet ordered, and report faithfully and minutely to the physician.

THE INVALID'S HOURS OF MEALS.

The laying in of food at intervals to meet the wants of the system is even in health somewhat of a tax to the digestive organs. The storing up of much food by a large meal to avoid future rather than satisfy present hunger, is a task which should not be imposed upon a sick stomach. In very bad cases and in low diseases the patient should not take regular meals at all, but the whole amount of nourishment needed in the twenty-four hours ought to be given in small portions at short intervals. Life may be endangered by allowing those very sick to go even a short time without supporting food or drink. In milder cases, a lunch between meals should be taken in order to remove both the necessity and inclination to eat too much at any one of the regular meals. The sick, and particularly those invalids who are subject to derangements of the stomach, should imitate a famous centenarian witness, who, when examined by a scientific judge, said he attained his great age by always "eating before he was hungry and drinking before he was dry." By this course his stomach was spared, for it was never overloaded, and never, therefore, had too much to do at one time. There is no fear of starving the patient by giving a little and often, for it is what

is digested, not what is swallowed, that nourishes. If the weak stomach cannot retain a teacupful of beef-tea given every three hours, try it on a tablespoonful every half hour, or, if this be rejected, a teaspoonful every fifteen minutes. In other words, give the stomach *less to digest*, and it will do its work.

Although it is often advisable to give food in divided portions at very short intervals, it should never be permitted to stand at the bedside or in sight of the patient, in the hope of tempting him to partake of it. This is a sure way of disgusting him. The food should only be brought into view at the proper time, and when the meal is over, at once removed, whether it be all eaten or not. Care ought to be taken not to bring more on the plates than will be needed, for the sight of a large mass will often prevent any being swallowed. Neither should food be prepared within the smell or sight of the patient, nor even talked about in his presence.

The *utmost punctuality must be observed in giving food.* The patient must not be kept waiting for a minute. The harm which may result from want of attention to promptness in this matter may be very great. When food, expected at a certain moment, is not at hand, the disappointment is very apt to bring about a nervous condition, which incapacitates the sufferer from taking it when it comes. Thus a delay of a few minutes may cause several hours' fasting, which may endanger life.

In the early morning hours it is ordinarily impossible for the patient to take solid food. The mouth is

then parched, and the tongue heavily coated. A chop, a piece of fowl, or an egg is at this time utterly distasteful. If, however, some concentrated liquid nourishment, as a few spoonsful of egg-flip or beef-tea, be given, the patient will be supported, and the way opened for solid food.

Many lives would be saved, had nurses more generally the knowledge, ingenuity, and perseverance to enable them to faithfully note the hours when their feeble patient could best take food, and to carefully observe the returning daily periods of faintness and sinking, in order to so arrange the giving of nourishment as to anticipate and avert them.

The life of a patient who was sinking from want of food, was preserved by the question put to him by his physician: "But, is there no hour when you feel you could eat?" "Oh, yes," he said, "I could always take something at —— o'clock and —— o'clock." The experiment of giving him food at these hours was tried, and succeeded. Unfortunately, but few patients can give this information; the nurse and doctor must find it out by close watching.

It is the duty of the nurse to *think* upon the subject of the patient's diet. She should remember how much he has had during the last twenty-four hours, and compare it with the amount he should have taken. She should provide in advance for his wants during the next twenty-four hours, and neither put him off with what she happens to have on hand, nor keep him waiting for hours or even minutes while she is preparing that which she ought to have had ready in an-

ticipation of his needs. To keep a patient waiting for food is, as we have said, to do him a positive injury—perhaps a very serious one.

THE PREPARATION OF COMMON ARTICLES OF FOOD FOR THE SICK.

Prof. Gross says, "The diet of the sick-room has slain its thousands and tens of thousands." The celebrated Dr. Rush said, in his lectures, "A physician should spend six months in a kitchen before entering upon his practical career." We could readily show by other quotations the importance attached to our present theme, sick-cookery, by those most eminent in the medical profession. All thinking men and women, who have had opportunities for observation of the sick, must be convinced that infinite harm is done by ignorance or neglect in preparing food for weak stomachs. "Many patients," it has been well said by an accurate observer, "are annually starved in the midst of plenty, from want of attention to the ways which alone make it possible for them to take food. This want of attention is as remarkable in those who urge upon the sick to do what is quite impossible to them, as in the sick themselves, who will not make the effort to do what is perfectly possible to them."

In preparing food for the sick, care should be taken not to have it any bulkier than can be helped. This is a nice point to determine. The preparations should not be too strong nor too thick, and yet not in such large quantity that the patient will reject a good

portion because he is not able to swallow so much at one meal. Do not compel him to digest a great bulk in order to get a little nutriment; avoid, therefore, making soups, broths, etc., very weak. They should be as concentrated as the invalid is able or likes to take them.

Sick-cookery, as has been aptly said, should more than half do the work of the poor patient's weak digestion. What, then, shall we say of the nurse who brings, or suffers to be brought, to the bedside of her charge, that which would be repulsive or indigestible if prepared for a healthy person? Yet this is true of many of the soups, broths, jellies, and teas which are made for the sick. They are both disagreeable and hurtful. The patient, exhausted by disease, requires food that is plain, simple, pleasant, and nutritious; he too often gets that which is insipid, flatulent, and devoid of nourishment.

MODES OF COOKING FOR THE SICK.

Roasting is the most wholesome and palatable way of cooking animal food; baking can never take its place, especially for invalids. But birds when roasted, and still more when baked, are too dried up. Unless the cook be a very careful one, it is therefore better to boil the fowl or partridge—the best birds for the sick, all others being too dry or too oily.

Animal soups stand in the front rank of the most nutritious dietetic articles for the sick. Every nurse should be skilful in making them. During the height

of disease solid food cannot usually be taken, but so soon as recovery begins it becomes valuable.

RECEIPTS FOR THE SICK-TABLE.

The most digestible form of animal food, next to milk, is properly made beef-tea. We therefore call especial attention to the following, which we consider by far the best

RECEIPT FOR NUTRITIOUS BEEF-TEA.

The nurse should understand that the virtue of beef-tea is to contain all the contents and flavors of lean beef in a dilute form; and its vices are to be sticky and strong, and to set in too hard a jelly when cold.

A pound of Fresh Beef should be chosen from the loins or neck, and carefully freed from fat. It is then to be cut into fine pieces, and a very little salt, and five grains of unbroken black pepper, added. Pour over it a pint of cold water, and place it on the fire to *simmer* (not boil) for forty minutes. Pour off the liquor, and squeeze into it all the juice from the meat through a cloth. The meat is then to be thrown aside, and the tea returned to the fire to *boil* for ten minutes.

Care must be taken lest too much salt be used, a fault frequently committed, and which renders the tea unpalatable to the patient.

The addition of a small tablespoonful of cream to a teacupful of this beef-tea renders it richer, but more nourishing.

Some persons find the tea more palatable if a clove of garlic be rubbed on the spoon, with which the whole is stirred.

A cup of this beef-tea taken on going to sleep, can often be borne when ordinary meals excite nausea.

Certain patients will often take beef-tea when they refuse all other kinds of food. This is particularly the case in gastric fever, in which little else is sometimes taken for weeks or months.

It has been noticed that a small amount of beef-tea, added to other articles of food, increases their nutritive effects very greatly and out of all proportion to the additional quantity of solid matter thus furnished.

A very nourishing broth is made by the addition of eggs and cream to beef-tea. The following is the receipt for

Eggs, Cream, and Beef-tea.

Wash a wineglassful (two ounces) of the best Pearl Sago until the water poured from it is clear. Then stew the sago in half a pint of water until it is quite tender and very thick. Mix with it half a pint of good boiling cream and the yelk of four fresh eggs, and mingle the whole carefully with one quart of good beef-tea (made as above directed), which should be boiling. Then serve.

This very nutritious preparation is very useful in many cases of lingering convalescence, after an attack of sickness.

The addition of *gruel* to beef-tea makes an excellent combination. It is made thus:—

Gruel and Beef-tea.

Take two tablespoonsful of Oatmeal, with three of cold water, and mix them thoroughly. Then add a pint of strong boiling beef-tea, made as above directed. Boil for five minutes, stirring well to prevent the oatmeal from burning; and strain through a hair sieve.

This is a good restorative during convalescence from sickness before solid food can be taken.

Extract of Beef.

Cut into small pieces a quarter or a half pound of Lean Beef, and cork it tightly in a wide-mouthed porter bottle, which is to be placed in a kettle of cold water. The kettle is heated until the water boils, and is kept on the fire for several hours. The bottle is then taken out, and the juice decanted, and seasoned with salt and pepper.

Essence of Beef.

Take one pound of Gravy-Beef, free from skin and fat, chop it up as fine as mince-meat, and pound it in a mortar, with two tablespoonsful of soft water. Then put it into a covered earthen jar, with a little salt, cementing the edges of the cover with pudding paste. Place the jar in an oven, or tie it tightly in a cloth and plunge it into a pot of boiling water for three hours. Strain off the liquid essence, which will amount to about a wineglassful in quantity. Give two or more teaspoonsful frequently.

This preparation is very useful in conditions of great debility, or exhaustion from any cause.

A Nourishing Soup.

Take of—

Beef, a shin.

Cold water, two quarts. Boil until the meat is in shreds. Season with one red pepper pod.

This soft jelly-like mass constitutes what is known as "the stock of soup." It can be kept for a week in a cool place. Whenever soup is wanted, take a teacupful of this stock and add half a pint of water, with vegetables, boil and strain. Then toast small pieces of stale bread and put into the soup. This preparation gives the extracted nutritive qualities of the meat and vegetables without the solid matter, and is often of great service when neither meat nor vegetables themselves can be taken.

An excellent *Restorative Soup* is made as follows:—

Take one pound of newly-killed Beef or Fowl, chop it fine, add a tumblerful (one-half a pint) of soft water, four or six drops of pure muriatic acid (to be had of the druggist), from a half to a whole teaspoonful of common salt, and stir well together. After three hours the whole is to be thrown on a conical hair sieve, and the fluid allowed to pass through with slight pressure. On the flesh residue, in the sieve, pour slowly a wineglassful of soft water, and let it run through while squeezing the meat.

There will thus be obtained over a tumblerful of cold juice (cold extract of flesh) of a red color and possessing a pleasant taste of soup. Of this a wineglassful may be taken at pleasure.

It must not be warmed (at least not to a greater extent than can be effected by partially filling a bottle with it, and standing this in hot water); for it is rendered muddy by heat or alcohol, a thick deposit forming.

If, from any special circumstances, such as a too frequent secretion of acid in the stomach, it is deemed undesirable to administer an acid, the soup may be well prepared by merely soaking the minced meat in simple distilled water.

This soup is very valuable in cases of continued fever, in dysentery, and, indeed, in all diseases attended with great prostration and weakness of the digestive organs. When the flavor is thought disagreeable, it may be concealed by the addition of spice.

Strong Broths for Convalescents.

These may be made by mixing together several kinds of meat, such as Beef, Mutton, and Veal, Cow's Shin, etc. Bones may be added, and any leavings of meat which are not too stale. Allow a pound of meat to a pint of water. Stew some slices of onion, peppercorns, and salt, in a little hot water; pour it over the meat, and cover close. Keep the mass from burning until it is nicely browned, then add the remainder of the water cold, and simmer, closely covered, for three or four hours. If there be much fat, skim it off when cold, and warm the liquor again. It must not be boiled fast.

This is a strong broth, and beneficial when the appetite is good.

Chicken Broth.

Put a Leg and Wing of a Chicken in a quart of water, and boil down to half the quantity. Add a teacupful of hot water, a tablespoonful of rice or barley, a little pepper, salt, and parsley. If desired, a little potato may be added.

Lamb Broth.

Stew a Lamb Chop in a quart of water until it comes to shreds, add a tablespoonful of barley or rice, and a little salt and onion, if desired. Strain, and add a little parsley.

Baked Partridge.

Clean the Partridge as you would a chicken to roast. Fill with raw oysters, seasoned with butter, pepper, and salt. Sew it up. Place in the oven, well wrapped with butter, and bake.

Broiled Partridge.

Open the Partridge on the back (so as not to break the breast, which is usually preferred by the sick). Place it on the gridiron, and broil, basting with butter while broiling. Serve on hot plates.

Boiled Tripe.

See that the Tripe has been well cleaned. Boil it in water until it becomes quite soft, then pour off the water, and boil for a few minutes in milk, adding a little onion sauce. Serve in a tureen.

The above is an excellent and readily digested food.

Calves' Feet in Milk.

Boil two Calves' Feet in two pints of Milk and Water, for three hours and a half.

Mutton or Veal Broth.

Take a Lean Mutton Chop; cold water a pint; a little salt and a tablespoonful of rice; a little parsley, pepper, and salt. Boil for an hour, and serve.

This broth will not keep, and therefore must be made fresh each time.

Chicken Jelly.

Cut up a Chicken, break all the bones, and put it into a stone jar. Fill the jar with boiling water, closely cover it, and keep the chicken in this boiling water for three hours and a half. Then strain the liquor, and season it with salt and mace. (The mace and spices, generally, are often disliked by the sick, and should then be omitted from all preparations.)

Vegetable Soup.

Take two Irish Potatoes, one Onion, and a piece of Bread; place them in a quart of water, and boil down to a pint, in a closely covered vessel; add a little celery or parsley towards the close of the boiling. Salt and pepper may be employed at pleasure.

Soup Tablets.—The following receipt is given by Dr. Reinsch, in the *German Manuals of Pharmacy*, for making the soup tablets so much in use in the German army during the late war.

Take eleven parts by weight of good Suet, melt in an iron pan, and make it very hot, so as to become brown; add, while keeping the fat stirred, eighteen parts of Rye Meal, and continue heating and stirring so as to make the mass brown; add then four parts of dried salt and two parts of coarsely pulverized caraway seed. The mixture is then poured into tin pans somewhat like those used for making chocolate into cakes. The cakes have the appearance of chocolate. A quantity of about one ounce of this preparation is sufficient to yield, when boiled with some water, a ration of good soup, and, the cakes being agreeable to the taste, may be eaten raw.

Oyster Soup.

Take of—

Oysters, a half dozen.

Milk, a teacupful, with enough liquor of the oysters to make a bowl, a few allspice and cloves, a nice lump of butter, pepper and salt. Bring to a boil and skim. Then throw in the oysters and simmer. Add a few toasted crackers before removing from the fire.

Broiled Oysters.

Toast some Bread. Butter and pour the Liquor of Oysters over the toast; set in the oven. Then broil the Oysters on a small gridiron, and place them over the toast, with butter and pepper.

Panned Oysters.

Take of—

Butter, a large piece and put into a right hot pan. Liquor of oysters, pour into the pan; so soon as hot, add the oysters and season light. Use no milk. A few tablespoonsful of Madeira wine may be added just before taking from the fire.

Roast Oysters.

The Oysters are to be well scrubbed. If not perfectly clean and white, they are not fit to enter the sick-room. The sight of dirty oyster-shells is sufficient to disgust the patient with the dish. After the oysters are nicely scrubbed, they are to be placed in an oven, in a pan. They lose their liquor if put over the coals, but when thus roasted they are served full of liquor. Eat with butter.

Steamed Oysters.

Scrub the Oysters clean. Put in a steamer over a kettle of boiling water until they open. Serve on the shells. Eat with pepper, salt, and butter.

Scolloped Oysters.

Take nice large Oysters, and put them with the liquor into a baking-pan, with milk, alternate layers of oysters and cracker crumbs, with plenty of butter, pepper, salt, and a little ground mace. Bake.

Raw oysters are often grateful to the sick. They are best served on the shells—previously scrubbed.

Frozen oysters are often pleasant during fever. The oysters and their liquor are frozen, in cold weather by placing in the open air, in warm weather by means of ice.

The eye of the oyster is not readily digestible, and should be removed for the sick.

Suet Pudding.

Take one Egg, half an ounce of Suet to be chipped very fine in four ounces of Flour, and three-quarters of a pint of Milk. Bake or boil.

The gravy of roast meat poured over this, makes a rich and agreeable dish.

Suet boiled in Rice Milk.

Take some *Rice Milk* (boiled rice and milk), and boil it. When nearly boiled enough, add a dessertspoonful of Beef Suet, already minced as small as bread crumbs. Boil slowly for a few minutes, and take off the scum as it rises. Or, the suet may be inclosed in a muslin bag. It must be eaten hot.

This was once a favorite remedy for consumption. It is certainly an excellent means of getting fat into the system when there is a demand for that element, as in wasting diseases in which cod-liver oil is ordered.

Wine-whey, properly made, proves in some cases of much service to the sick. It is prepared as follows:—

Take a pint of fresh Milk, and place it on the fire; as soon as it reaches the boiling point add as much good Madeira or Sherry Wine as will coagulate it. Then strain the mixture, and sweeten or flavor for use.

Lime-Water and Milk.

Mix together equal parts of Lime-Water (to be had of the druggist) and Milk.

This compound will sometimes be retained when all other food is rejected. As a variety, milk and soda-water in equal proportions may also be taken when the stomach is delicate and ejects everything else.

In this connection we may mention that the addition of fifteen grains of bicarbonate of soda (to be had of the druggist) to the quart of milk, not only prevents it from turning sour, but renders it more digestible.

English Milk Porridge.

Rub up a tablespoonful of good Flour, or fine Oatmeal, in a little cold water, and when well mixed pour it slowly into a pint of hot milk, and boil for a few minutes, stirring well.

Spanish Cream.

Take of—

Isinglass, one-half an ounce.

New milk, one and one-half pints. Simmer, but do not boil.

Eggs, the yelks of two and one-half, to be beaten with one-half cup of loaf sugar.

Pour the hot milk on the eggs, spice to the taste, and put into moulds, allowing five hours for it to congeal.

To make an excellent soft custard:—

Take of—

Milk, a pint. Place it to boil; while boiling, take of

Eggs, three; separate them, and beat the yelks up with sugar enough to sweeten to the taste, and with corn-starch, a teaspoonful, rubbed in smoothly. Then pour this egg and corn-starch mixture into the pint of boiling milk. Boil for a few minutes, and stir constantly to prevent lumping and burning. When the whole becomes a thick, creamy mass, remove. Have ready, in a dish, some

Stale sponge-cake, wet with brandy or wine.

Pour the custard over it, and cover all with the white of the three eggs whipped stiff, with a half teacupful of pulverized sugar, and flavored with vanilla.

The dish may be served in a tempting and pretty way by ornamenting the top with currant jelly.

As many dishes with eggs are spoiled by the eggs having been improperly beaten, we append the following *directions for beating eggs light:*—

Never employ an egg-beater. Use only a fork, silver or *steel*. *Beat in one way only*, towards the left; beating first on one side of the dish and then on another, makes the mass heavy and causes it to fall.

Attention to these directions will enable any one to beat eggs into a dry, light, and puffy condition.

Artificial Ass's Milk.

Take half an ounce of Gelatine and dissolve it in half a pint of Hot Barley Water. Then add two tablespoonsful of refined sugar, and pour into the mixture a pint of good new Cow's Milk.

Artificial Goat's Milk.

Chop an ounce of Suet very fine, tie it lightly in a muslin bag, and boil it slowly in a quart of New Milk. Sweeten it with white sugar.

This is an excellent preparation in some cases of wasting diseases, where the unpleasant odor of goat's milk, prevents its being taken.

Milk, Flour, and Iron.

Beat up carefully a tablespoonful of Flour, one Raw Egg, and twenty grains of the Sweet Carbonate of Iron (to be had of the druggist), with half a pint of New Milk. Flavor with nutmeg and white sugar.

Take this for lunch with a biscuit. It will be found very valuable in the early stages of consumption and wasting diseases.

Brandy and Egg Mixture.

Take the whites and yelks of three eggs, and beat them up in two wineglassesful of Brandy, with a little sugar and nutmeg.

Two tablespoonsful should be given every four or six hours in cases of great prostration. Often the addition of a teaspoonful of Huxham's tincture of bark to each dose will be found beneficial.

To cook rice in the Southern manner, first wash the rice well with cold water, and then proceed as follows:—

Boiled Rice.

Take of—

Rice, a teacupful.

Cold water, a quart; add a little salt. Cover and boil with the lid on; but *do not stir*. After it is boiled soft, take off the lid, and set on the back of the fire to dry. All the grains will then be found separated.

Macaroni and Vermicelli.

Add a little cold water to one ounce of either. Boil for a few minutes, then pour away this water, and boil in half a pint of milk, grate in cracker crumbs, butter, and add a little nutmeg; or make into puddings, and bake.

Macaroni is a cheap and valuable article of sick-room diet. It and vermicelli may be advantageously added to any kind of broth, or eaten with a chicken or a chop in place of vegetables. It is a perfectly safe food.

Rice Pudding.

Take two tablespoonsful of Rice; Sugar to taste; one Egg; piece, size of a walnut, of Butter; and one pint of Milk. Mix, and bake.

This is a most valuable article of food.

To make Irish Moss Blanc Mange:—

Take of—
Irish Moss, only a small pinch, as it is very strong.
Cold water, a teacupful. Soak for half an hour.
Boiling milk, a pint. Mix, sweeten to taste, flavor with vanilla, strain through a hair sieve, and put in moulds, and on the ice to thicken. It should become so thick that it can be cut into slices.

A *Cream* with which to serve the above, is made as follows:—

Take of—
Milk, a large coffeecupful. Place over the fire, and as it comes to a boil, beat up an egg briskly in it, and flavor with wine or brandy.

This cream poured over the blanc mange adds both to its flavor and nutritive qualities.

Caudle.

Beat up one Egg with a wineglassful of Sherry, and add to it half a pint of fine hot Gruel. Flavor with sugar, nutmeg, and lemon-peel.

This is often useful in sleeplessness caused by debility.

Oatmeal Mush.

Take of—
Oatmeal, four tablespoonsful.
Boiling water, a quart. Mix, and boil for an hour and a half, adding a half teaspoonful of salt. Then turn it out in small cups, and eat it with milk.

To make *oatmeal gruel*, see p. 403.

To Make Corn-Meal Gruel.

To any amount of boiling water add sufficient salt to give it a flavor. Then stir in slowly enough corn-meal to make a *thin* gruel; let it remain on the fire for fifteen minutes, stirring constantly, adding boiling water to keep it moderately thin. Serve with Milk and Sugar, Molasses, or Honey, as preferred.

To Prepare Tapioca.

Take of—

Tapioca, one-half teacupful.
Water, one quart. Boil until perfectly clear.
Sugar enough to sweeten to taste.

Put in dish, with sliced apples or peaches, and place in the oven to bake. Eat with cream.

Or, instead of baking with apples in this way, cut pineapple, fresh or preserved, or marmalade, into the clear boiled tapioca, and eat with thick, rich cream.

Another receipt for preparing Tapioca will be found on p. 405.

To prepare Sago.—Follow the above receipt for Tapioca; see also p. 405.

Tapioca or Sago with Eggs.

Boil as above directed. Instead of apples or peaches, put in two eggs and a little nutmeg, and then bake. Eat with or without cream.

Farina is prepared in the same manner as Tapioca, using milk instead of water.

Corn-Starch.

Take of—

Milk, one pint, to be brought to boiling point.

Corn-starch, three tablespoonsful, mixed with milk into a thin paste (and break in one egg if desired); add to the boiling milk, sweeten, put in a little pinch of salt, and stir to prevent burning. Boil until it becomes thick; turn into a mould to cool.

Bran Bread.

Take of—

Bran flour, one quart.

Sour milk, one pint.

Soda, teaspoonful.

A little salt, and syrup to sweeten to the taste. Bake at once

Milk Bread.

Take of—

New milk, one teacupful.

Salt, a small half-teaspoonful.

Boiling water, one quart. Mix, and allow to stand until about milk-warm. Then stir in flour until it becomes quite stiff, and add a teacupful of yeast. Set the vessel in another of warm water, and be careful not to let it get too hot. When cool, knead, and bake like ordinary bread.

Many people, not knowing how to properly make yeast, have sour bread. In the interests of the sick, to whom sour bread is especially distasteful and hurtful, we give the following receipt for making *potato yeast:*

Pare, boil, and mash finely twelve Potatoes. Stir into these a large cup of Sugar, and one quart of boiling water. When cool, add one quart of cold water and half a pint or less of yeast. It is now fit for use. Shake before using.

Bread made of this yeast never needs saleratus; the sugar in the yeast prevents it from souring. It must be kept in a warm place.

Corn Bread is very nice for breakfast for a sick person. It is made as follows:—

Take of—
Sour milk, one quart.
Saleratus, two tablespoonsful.
Butter, a quarter of a pound.
Flour, three tablespoonsful.
Eggs, three.
Corn-meal, enough to make a stiff batter. Bake at once.

Bread Pudding.

Take—
One pint of Milk; two Eggs; mix and sweeten. Place a few slices of buttered bread on top. Put in oven and bake.

Or,

Grate a few pieces of Stale Bread into crumbs. Pour boiling milk over them, and cover close from the air. When the mass is quite smooth and cold, add Sugar and an Egg or two, a bit of Nutmeg, and a few drops of Lemon; and bake or boil.

Cracker Pudding.

Take of—
Crackers, four, rolled fine.
Boiled Milk, a pint, to be poured on the crackers.
Butter, a piece of the size of a walnut.
Eggs, two or three.
Bake for an hour, and eat with wine sauce.

Milk Toast.

Cut a round off a loaf and toast it uniformly brown; lay it in a soup-plate, and pour in it as much boiling Milk as is necessary to soak it completely. Then butter and sprinkle with a little salt.

This makes a delicious and nourishing article, and, from its soft texture, well suited to invalids.

Apple, or other Fruit, with Bread Crumbs.

Boil the Fruit well; then rub the pulp through a hair sieve. Make it thick enough to stand in a conical shape; add a little butter, and surround the mass with a coating of crumbs of stale bread, browned before the fire.

This is a nice relish, and generally a safe one. It is useful where fruit may be allowed, but not pastry.

Bread Jelly.

Take a quantity of the soft part of a loaf, break it up, cover it with boiling water, and allow it to soak for some hours. The water, containing all the noxious matter with which the bread may be adulterated, is then to be strained off completely and fresh water added. Place the mixture on the fire, and allow it to boil for some time, until it becomes smooth. The water is then to be pressed out, and the bread on cooling will form a thick jelly. Mix a portion of this with sugared milk and water, for use as it is wanted.

This is a good food for infants at the time of weaning, and for sick children.

An appetizing *Jelly* is made as follows:—

Take of—

Cox's gelatine, a fourth of a box.

Cold water, a half pint. Soak for an hour and add:—

Boiling water, a pint.

White sugar, a half pound.

Lemons, one and a half, both juice and grated rind. Stir well, strain through a flannel bag, and set to cool. If wine be allowed, add, before thinning,

Madeira wine, half a wineglassful.

Allspice and cinnamon are to be avoided in the making of this jelly, as they are ordinarily disagreeable to the sick.

Oranges may be employed instead of lemons; or oranges and lemons may be mixed.

Iceland Moss Jelly.

Take of—

Iceland moss, two ounces (to be had of the druggist).

Water, one quart. First wash the moss in some cold water. Then boil it slowly in the quart of water until it becomes very thick, adding white sugar until it is made sweet enough. Strain through a cloth. Serve cold. It may be eaten, if preferred, with spices.

Irish Moss Jelly.—Made in the same manner as Iceland Moss Jelly.

Iceland Moss and Bitter Jelly.

Take of—

Iceland and Irish moss, each one ounce (to be had of the druggist). Boil slowly for three-quarters of an hour in a pint and a half of milk, strain through muslin, and add six tablespoonsful, dissolved in two tablespoonsful of the compound tincture of bark, Huxham's tincture (to be had of the druggist).

A dessertspoonful to be taken frequently in the course of the day.

The above is a useful dietetic and tonic jelly in consumption and other wasting diseases.

Calves' Foot Jelly.

Take of—

Calves' Feet, one set.

Boiling water, a quart. Boil down to a pint. Sweeten while boiling. Flavor with lemon-juice and the grated rind of a lemon. Do not use cinnamon. Then strain through a flannel bag, and put in a bowl. After it is jellied, serve in glasses.

Or,

Put two Calves' Feet in one gallon of water, and boil down to a quart. Strain, and, when cold, skim off the fat. Take up the clear jelly, and place it in a saucepan with a pint of wine, half a pound of loaf sugar, the juice of four lemons, and the whites of six or eight eggs, beaten into a froth. Mix all well together. Set the saucepan upon a clear fire, and stir the jelly until it boils. When it has boiled for ten minutes, pour it through a flannel bag until it runs clear.

Slippery Elm Bark Jelly.

Take four large spoonsful of chipped Slippery Elm Bark, and pour on a quart of water. Let it stand all night, and then stir and let it settle. The next morning, pour off the water. Slice the rind of a lemon very thinly, and, with the juice, put it in the water strained. Let it gently simmer for fifteen minutes. Sweeten and pour in a mould to cool and harden, taking out the rind before putting it in the mould.

Rice Jelly.

Take a quarter of a pound of Rice Flour and a half pound of Loaf Sugar; boil in a quart of water, until the whole becomes a glutinous mass. Strain the jelly off and flavor.

This preparation of rice is nutritious and light.

Sago Jelly.

Take four tablespoonsful of Sago, one quart of water, the juice and rind of one Lemon, and enough Sugar to render it agreeable. After the mixture has stood half an hour, boil it until all the particles are entirely dissolved, the mass being constantly stirred.

A very excellent jelly for invalids may be made by thinly slicing and slightly toasting a penny roll, boiling it in a quart of water until it becomes a thick mass, and straining it upon a few shavings of lemon-peel.

In making all these preparations, the utmost care must be taken to avoid scorching. For this reason, it is better to have a double boiler.

Toast-water.

Take of—

Stale bread a slice, and toast right brown.

Boiling water, a pint, to be poured over the toast in a large bowl. Sweeten, and put in a little nutmeg. Cover until cold.

Tamarind-water.

Take one ounce and a half of the best Tamarinds, and two ounces, each, of Currants and Raisins, washed and stoned. Boil in three pints of water until reduced one-half. Then add a bit of lemon-peel, and strain.

The above is an agreeable drink when a sour and strongly flavored one is desired.

Barley-water.—It may be made in two ways—thin or thick. When wanted only as a drink, it should be thin; if food be the object, it must be thicker.

Thin Barley-water for drink.

Wash some Pearl Barley very clean in two or three cold waters. To one or two tablespoonsful of the barley add a quart of boiling water, and let it stand uncovered near the fire for two hours. It must not be boiled. Add two or three slices of lemon and some of peel. Sweeten to taste.

This is a useful drink in irritable conditions of the stomach, bowels, kidneys, or bladder.

Thick Barley-water.

After cleansing the Barley, as above directed, take two tablespoonsful or more of Barley to each pint of water. Simmer for two hours, adding a few opened raisins, and a little lemon-peel and sugar, during the last quarter of an hour. It need not be strained.

When this can be taken freely, it affords a considerable amount of nourishment. It is useful in great prostration, and in weakness of the digestive organs.

Almonds and Milk.

Take a large pinch of Isinglass and boil it with a tumblerful of Milk, half a dozen bruised Almonds, and two or three lumps of Sugar. To be taken warm once or twice a day.

This is a very useful, soothing drink in cases of sore throat. Also in some cases of debility, with irritability of the stomach, and a tendency to diarrhœa.

NUTRITIOUS CLYSTERS.

The patient is sometimes unable, from exhaustion or the character of the disease, to take food by the mouth. It then becomes necessary to nourish him, through the bowels, by nutritive injections. The following will be found useful:—

Beef-tea and Cream Injection.—An excellent nutritious injection may be made by mixing together from half a tumbler to a tumblerful of beef-tea, two tablespoonsful of cream, and a tablespoonful of brandy. The whole to be administered as an injection two or three times in the course of twenty-four hours.

This will be found useful in cases of inflammation or cancer of the stomach, and in obstinate, long-continued vomiting, where it is necessary to avoid giving food by the mouth.

Another form of the same preparation may be made thus: Take a half tumbler or a tumblerful of restorative soup (see receipt on page 493), two tablespoonsful of cream, two teaspoonsful of brandy, and five drops of laudanum. For one injection.

Cod-liver Oil and Bark Injection.—Take half a tumbler of essence of beef (see receipt on page 492), four tablespoonsful of port wine, two tablespoonsful of cod-liver oil, and two teaspoonsful of Huxham's tincture of bark (to be had of the druggist). Administer the whole of this as an injection every twelve hours.

Quinine and Beef-tea Injection.—Take one tablespoonful of brandy, five grains of quinine, one tea-

spoonful of glycerine, two tablespoonsful of cream, and from half a tumbler to a tumblerful of beef-tea. This injection should be administered every six or eight hours.

CHAPTER IV.

DIRECTIONS FOR THE ADMINISTRATION AND APPLICATION OF MEDICINES TO THE SICK.

CONTENTS.

The preparation and use of external applications—Poultices; Bread and milk poultice; Simple bread poultice; Flaxseed-meal poultice; Carrot poultice; Slippery-elm poultice; Arrowroot poultice; Medicated poultices; Yeast poultice; Charcoal poultice; Bran poultice; Onion poultice; Mustard poultice; Fig poultice—Cold and warm water dressings—To make a cold application in the absence of ice—Fomentations—Stuping—Steaming—Medicated lotions; Sugar of lead and opium solution; Aconite lotion; Cooling lotions; Lotions to allay itching of the skin; Carbolic acid; Borax and glycerine—Solution of arnica—Protective Solutions; Solution of gutta-percha; Collodion—Liniments—Blisters, and how to apply them—Cupping—Leeching—Directions for administering injections—The doses of the more common medicines—How to ascertain the dose for a child—Doses for adults—How to measure medicines—The time of the day to administer medicines—The intervals between each dose—Constitutional peculiarities in regard to the effects of medicines.

IT is our object, in the present chapter, to give some practical information in regard to the administration of medicines to the sick, and first in regard to

THE PREPARATION AND USE OF EXTERNAL APPLICATIONS.

Every woman should know how to make a poultice, but few do. In consequence of this ignorance, poul-

tices, improperly made and applied, not only often fail of their desired effect, but, as we have in many cases seen, do actual harm. They chill and irritate the surface they were intended to warm and soothe. Blisters, lotions, cups, leeches, and other external applications, are constantly ordered by the doctor; we will furnish the nurse with plain directions for carrying out his orders.

POULTICES.

The uses of poultices are important and various. We shall have occasion to recommend them in many affections. They should be made of such a thickness and consistence that they will adjust themselves evenly to the surface to which they are applied, and not run over the neighboring parts, nor the clothes of the patient. They should not be sticky, nor of too much weight or bulk, otherwise they will adhere to the skin and oppress it. As one of the principal objects of the poultice is to apply heat and moisture, so soon as it becomes cool and dry it must be removed and instantly replaced by another; ordinarily twice a day is often enough to make the change, excepting in warm weather, or in cases of much discharge. The outer surface of the poultice should always be covered with oiled silk, paper, or muslin, to confine its moisture and warmth. This precaution must never be neglected. If the prepared oiled silk, sold by all druggists, be not at hand, it is easy to oil some paper or muslin. Unless the poultice be thus protected, it very quickly cools and dries. It is well, also, to place

over the inner surface of the poultice, that which goes next the skin, some thin gauze or bobinet, which will prevent the contents of the poultice from adhering to the skin, and render its removal easier for both nurse and patient. A poultice should never be applied to the skin hotter than the patient can bear with comfort; to burn the skin is simply to inflict needless torture.

Poultices are used, as we have said, for various purposes; thus, some to merely soften and relax the parts; some to relieve pain; some to act as astringents; some as antiseptics.

The *Bread and Milk Poultice* is made as follows:—

> Pour boiling Milk upon the Crumbs of Stale Wheat Bread in a basin; stir with the back of a spoon until the mass is brought to the thickness and consistency of mush. Spread upon a piece of cloth folded several times, and a little larger than the surface intended to be covered. After applying, cover with oiled silk.

This is an excellent poultice, subject to the only disadvantage of quickly souring. It must, therefore, be *frequently changed*. Instead of milk, water may be used in the preparation of the poultice, we then have—

The *Simple bread poultice*, which does not become offensive so soon.

> Cut slices of Bread half round a loaf, about three-quarters of an inch thick; place them in a soup-plate, and pour boiling water upon them until they are quite soaked through. Smear a little Sweet Oil over the surface which is to go next the skin, and do not break the bread.

Flaxseed-Meal Poultice.

Warm a wash-basin by scalding it with boiling water; place in it sufficient Ground Flaxseed, and mix it well with *boiling* water, so as to have no lumps, into a thick, smooth, cohesive mass. Spread it a quarter of an inch thick upon folded muslin or soft linen; lay over it a piece of thin gauze, which may be sewed around the edges so as to inclose the poultice in a bag, and thus prevent it from escaping into the clothing. Apply, and keep warm and moist by a cover of oiled silk, paper, or muslin.

To make a poultice large enough to envelop one side of the chest, from half a pound to a pound of linseed-meal will be required. The flaxseed-meal poultice is, for most purposes, the best which can be employed; it retains its heat and moisture for a long while, the oil it contains keeps it soft and prevents it from sticking, and it is always easily and quickly made.

Poultices are also made from *turnips*, *carrots*, *apples*, and the more tender roots, by removing the skin, boiling them, and mashing into a soft pulp.

Slippery-Elm Poultice.

Moisten the powdered slippery-elm bark with hot water; spread and apply as directed for flaxseed-meal poultice.

This poultice is very light and soothing, it is therefore well adapted for application to the eye or to burns and irritable sores.

Arrowroot Poultice.

Mix the arrowroot into a smooth paste with sufficient cold water, then add enough boiling water to make it into a thick, adhesive mass. Spread and apply as above directed.

This is a most useful poultice for application to tender and irritable places.

MEDICATED POULTICES.—Any of the above poultices may be medicated by the admixture of various drugs. To make the poultice *astringent*, sprinkle over the surface some of Goulard's Extract, or in preparing it use, instead of water, a solution of acetate of lead (half an ounce of sugar of lead to the quart of water), or a decoction of oak-bark (an ounce of bruised oak-bark to a pint of boiling water). To make any poultice *anodyne*, sprinkle laudanum over the surface; to get a *stimulating* effect, mix with it common salt, vinegar, or port-wine; to apply *cold*, partly fill a bladder with broken ice and spread over the surface of the poultice.

Yeast Poultice.

Take of—
Flaxseed-meal or oatmeal, one pound.
Yeast, one-half pint. Mix.
Heat in a pot until the mixture swells. Spread on linen.

This yeast, or fermenting poultice, is used in fetid ulcers, in gangrene and mortification, as an antiseptic.

Charcoal Poultice.

Mix finely-powdered recently-burned Charcoal with the Bread, Oatmeal, or Flaxseed, before making into a poultice, in the manner above directed.

The charcoal poultice is an excellent antiseptic, but subject to the objection of discoloring the parts to which it is applied, and thus concealing from the eye their true condition. This defect may be remedied, however, by covering the poultice, before application, with a piece of fine linen.

Bran Poultice.

Scald some Bran in a soup-plate, put it into a funnel bag, and lay upon the seat of pain.

This is a very soothing application in pain of the stomach or bowels.

Onion Poultice.

Boil thoroughly some Corn Meal until a soft mush is produced; cut several raw onions very fine; stir the onions and juice into the hot mush; heat through and spread upon cloths.

Or,

Partially roast some Onions; mash them and spread upon folds of thin muslin.

When children are threatened with convulsions or fits, the application of onion poultices to the legs and arms is a useful one, and may avert the attack. Onion poultices are also of service in cases of croup and catarrh of the chest in young children.

Mustard Poultice.

Mix the Flour of Mustard with *warm* (not hot) water; spread evenly upon several folds of muslin; cover the surface, which is to be placed next the skin, by a thin piece of gauze or cambric.

The length of time during which this application can be borne, varies with the condition of the skin, and the sensibility of the patient. In a few minutes after it is applied, a feeling of warmth will usually be noticed; this sensation becomes more and more marked until, in about twenty minutes' time, it can no longer be borne with any degree of comfort.

It is a general practice to use vinegar instead of water. But, if the mustard be pure, a better poultice is obtained with water than vinegar. The water employed should be neither hot nor cold, but tepid.

The mustard poultice should never be allowed to remain on long enough to produce a blister. The sore resulting from such a blister is a very troublesome one and very painful. We wish to particularly caution the nurse and patient on this point. Persons have sometimes fallen asleep under the first soothing effects of the mustard poultice, and been awakened afterwards by the agony from the severe and dangerous burn resulting. When the patient is unconscious, of course the effect must be carefully watched.

In the case of children and delicate adults, the mustard flour should not be used pure, but mixed with equal parts of wheat or rye flour. For very young

children, one part of mustard to four or five of flour is the proper proportion.

If a still milder application be wanted, mix the mustard with syrup or molasses instead of water. This may be borne for two or three hours.

A *fig* is often useful as a soothing application instead of a poultice, especially in gum-boils. This remedy was known to Hebrew medicine. Thus we are told:—

"And Isaiah said, Take a lump of figs, and they took and laid it on the boil, and he recovered." (2 Kings, xx. 7.)

COLD AND WARM WATER DRESSINGS.

The application of cold water is useful and curative in many cases of inflammation affecting the external parts of the body. The means of application are various.

The limb may be wrapped in old soft linen, and a little stream of cold water directed over it from the stopcock of a vessel placed above it, the overflowing water being conducted by a proper arrangement of oil-cloth into a tub or bucket at the side of the bed.

Or, the affected part may be covered with a thin wide piece of sponge, or some folds of linen, on which is placed a bladder partially filled with pieces of ice.

Or, the diseased surface may be covered with lint, kept moist by means of a piece of common lampwick, one end of which is placed in a basin of cold water, and the other extended over the enveloping lint. The

wick, by its siphon-like action, conveys the water from the basin to the limb.

In all these methods, the part to which the water is applied is to be exposed to the air, to promote evaporation.

When ice cannot be had, the water may be cooled by a *freezing mixture*. The number of those mixtures is very great. We shall mention only a few of the best and most convenient.

Add one part of alcohol to six of water.

Or,

Take of—
Muriate of ammonia,
Nitrate of potash, each five ounces.
Water, one pint. Mix.

Either of these mixtures will make a cold application in the absence of ice.

The application of cold water is not always well borne. Patients who are young and strong bear it better than the *old* and weak. The season of the year has an influence—cold water being more comfortable in summer than in winter. The feelings of the patient should always be consulted; if cold applications occasion discomfort and pain, they must be exchanged for warm.

Warm water applications are more used at the present day than cold, and are ordinarily better borne by the patient.

In many inflammatory affections, where a relaxing effect is wanted, they are to be preferred to cold water applications, which have a constringing influence.

The simplest *fomentation* consists in saturating a large piece of soft thick flannel with hot water, and applying it to the affected part, covering it with oiled silk, paper, or muslin. As this application requires frequent renewal, a second piece of flannel should be kept at hand to replace the other the instant it is removed. Fomentations, particularly when medicated with some of the *anodyne lotions*, the formulas for which we are about to give, afford great relief to pain and spasm.

Stuping is a sort of fomentation employed in diseases of the eyes, nose, mouth, ears, and throat. The procedure is a simple one: Roll a piece of flannel into a ball, immerse it in boiling water, and, when thoroughly wet, put it in a pitcher or bowl, which is to be held near the affected part, so that the steam may rise around it. As fast as the flannel becomes cool, rewet it. Laudanum or the tincture of belladonna may be sprinkled upon the cloth, if their effects are desired.

Steam may be applied directly to a part by means of a rubber tube, one end of which is attached to a small boiler placed over a spirit-lamp, or to the spout of a teakettle, and the other passed under the bedclothes, to reach any desired portion of the body.

MEDICATED LOTIONS.

Instead of cold or warm water, it is often desired to use a medicated lotion. We therefore append the receipts for a number of the most efficient. They are

to be employed in the manner we have just directed for warm and cold water applications.

Lotion of Sugar of Lead and Opium.

Take of—
Sugar of lead, one-half an ounce.
Powdered opium, one-half a drachm.
Boiling water, two quarts. Mix.

To be applied by means of a piece of old flannel wrung out in the solution—not forgetting to cover the flannel with oiled silk, paper, or muslin, in order to confine the heat and moisture.

The above is a very grateful application in many painful affections. We shall have occasion to prescribe it frequently when we come to the treatment of diseases.

Aconite Lotion.

Take of—
Tincture of aconite, one and a half fluidounce.
Water, four fluidounces. Mix.

Useful to relieve suffering in neuralgia and other affections in those cases in which the pain is not deep-seated.

Cooling Lotions.

Take of—
Spirit of mindererus, two tablespoonsful.
Spirits of wine, a wineglassful.
Rose-water, a tumblerful. Mix.

This is a cool, evaporating lotion, especially useful for application to the scalp in diseases of the brain.

Or,

Take of—
Muriate of ammonia, one-half an ounce.
Spirits of wine, two tablespoonsful.
Vinegar, three tablespoonsful.
Water, a small tumblerful. Mix.

LOTIONS TO ALLAY ITCHING OF THE SKIN.

One of the best applications to allay itching is *good cider vinegar* sponged over the parts.

A warm bath followed by the plentiful use of home-made soft soap or of *carbolic acid* soap is very useful for the relief of the tormenting itching which attends some skin and nervous diseases.

Itching of the skin in old persons is frequently relieved by the application of glycerine by means of a sponge. Or, carbolic acid may be added to the glycerine thus:—

Take of—
Fluid carbolic acid, one teaspoonful.
Glycerine, two tablespoonsful.
Water, a tumblerful. Mix.
Apply by means of a sponge.

Another preparation for relieving itching is that of

Borax and Glycerine.

Take of—
Borax, three or four teaspoonsful.
Glycerine, a tablespoonful.
Rose-water, a tumblerful. Mix.
The affected parts are to be washed with glycerine or honey soap and warm water, and this lotion applied several times a day. In severe cases morphia may be added to it—ten grains of the muriate of morphia to be dissolved in the lotion.

Solution of Arnica.

Take of—
Tincture of arnica, three teaspoonsful.
Water, a tumblerful. Mix.

This is an excellent lotion in sprains, bruises, and slight burns, in which the skin is not broken.

PROTECTIVE SOLUTIONS.

There are various solutions which can be painted over the skin to protect it from the action of the air or from friction. One of these is the caoutchouc or India-rubber solution. It is made by dissolving some thin slices of India-rubber in chloroform. The *solution of gutta-percha* may be obtained ready made from the druggist. It is useful to paint over surfaces from which the skin has been abraded or excoriated, and to prevent threatened bed-sores.

Collodion, which may be obtained from any apothecary, makes also an excellent coating for the skin. It is, however, liable to crack. This cracking may be prevented by mixing one part of collodion with two parts of castor oil. This mixture will be found a valuable varnish in excoriations, abrasions, and slight burns. It forms a good artificial skin to take the place of that which has been injured or destroyed.

LINIMENTS.

An excellent liniment, of frequent use in the sick-room, is made by dissolving lump *camphor* in *sweet oil*. Place a saucer of sweet oil on the fire, and dissolve in

it as much camphor as it will take up. A little *bees-wax* may be added.

A mixture of equal parts of *sweet oil* and *lime-water* makes a soothing embrocation in cases of burns, chapped hands, and abrasions.

A mixture of one part of *tincture* of *aconite* with four of *soap liniment* is useful in neuralgia and other pains, well rubbed into the skin.

Another useful liniment to relieve pain is made by mixing equal parts of liniment of ammonia, chloroform liniment, and soap liniment.

A stimulating reddening liniment is made by adding cayenne pepper and oil of mace to soap liniment. About thirty grains of the pepper and thirty drops of the oil to eight ounces of the liniment. It is useful to make counter-irritation in cases of bronchitis and muscular rheumatism.

BLISTERS.

We are indebted to the Arabian physicians for a knowledge of the practical value of blisters. The ancient Greeks and Romans used mustard plasters for the purposes for which we now employ fly blisters.

Blisters are external applications to the skin, which, by the irritation they produce, excite inflammation and cause an accumulation of fluid under the scarf skin, which is thus separated and raised from the true skin. Various substances have been used for this purpose, such as boiling water, strong acid, mustard, harts-

horn, lunar caustic, iodine, turpentine, garlic, an tartar emetic, but none are equal to the Spanish fly.

The Value of Blisters.—There is a popular adage that "blisters are always safe; if they do no good, they can do no harm." This saying is not a true one. Like all remedies powerful for good, they have a power for evil also. To children, and the aged and infirm, they should be applied with caution. No child under five years of age should ever have a blister applied, and in the case of older children the blister should be allowed only to remain long enough to redden the skin, after which a flaxseed or bread and milk poultice should be used. The most terrible suffering, and even death, has followed the use of a blister upon young children. Those enfeebled by age or a long sickness bear blisters badly. They should not be applied over the windpipe of children, nor upon the breasts of women.

HOW TO APPLY A BLISTER.

The common blister is made by spreading fly ointment (blistering cerate) on a piece of thick glazed paper, kid or split sheepskin, or on adhesive plaster. The latter is the best material; for, by leaving a margin in spreading, the plaster is easily made to adhere by warming the uncovered margin and pressing it carefully on the part. When the blister is not spread on adhesive plaster cloth, it is confined by means of a roller bandage, or preferably by a few strips of sticking plaster.

Before applying the blister, the part of the skin to

be covered by it must be *shaved* in order to remove all hairs, and then gently washed with soap and warm water, and thoroughly dried with hot flannel. It is not necessary to warm the blister itself, but merely the margins when it is spread upon adhesive plaster. The edges of the blister are to be clipped in numerous places, and a few cuts, about half an inch long, made on the back, so as to ease the pressure when it rises.

To prevent strangury (irritation of the bladder), which sometimes follows the use of a blister, a piece of thin tissue paper, wet with spirits of camphor, should be interposed between it and the skin, or, what is better, a few grains of morphia sprinkled upon its surface before application. This precaution is particularly necessary in the cases of young children, or of persons of a nervous temperament. In addition, it is well, in such instances, to have the patient drink freely of flaxseed tea, barley or gum-arabic water, with a little sweet spirits of nitre.

When it is desirable to have the blister to act quickly, a mustard plaster may be applied over the part ten or fifteen minutes before it is put on.

The Time the Blister should Remain on.—The time depends upon the age of the patient, his strength, and his susceptibility to its action. As a rule, from six to eight hours is the proper period. If the skin be sensitive and delicate, less time will do. It should be taken off on the appearance of the first sign of blistering. In children, two or three hours will be the utmost limit. Indeed, in their case, the blister had better be taken off at the end of *an hour and a half*, even al-

though the skin may be found unchanged, and a warm poultice applied which will keep up the action and produce the desired result.

In adults it is never necessary to keep the plaster on until the blister is completely formed. When the skin is well reddened, and a few little bladders have appeared here and there, the use of a soothing poultice or a warm water dressing will complete the operation. In taking off the blister, care should be observed that every particle of the fly ointment is removed.

HOW TO DRESS A BLISTER.

The bladders should never be cut, unless it is desired to keep an open sore for purposes of counter-irritation. The raised scarfskin should be punctured with a large needle, so that the water may gradually drain off. The raised portion of the skin will then fall back upon and protect the raw surface beneath from the action of the air. In some cases, in fact, particularly in the treatment of catarrh of the chest, the best results are obtained by leaving the blisters unopened. The water of the unopened blister affords one of the best possible applications for the raw surface, and prevents the possibility of the formation of troublesome sores in children or in persons of an irritable habit of body. The dressing under these circumstances consists merely of a piece of lint smeared with fresh lard or sweet oil, applied twice a day over the blister.

After the discharge of the water from the blister, soft cotton wadding applied over the part with the

woolly surface next the skin, is an admirable dressing. If in the course of a few hours this should become soaked with the discharge, as much of the cotton may be removed as can be done without disturbing the loose skin beneath, and the whole covered with a fresh dry layer of cotton. This will ordinarily be all that is required. The cotton is allowed to stick to the skin of the blistered part, and when a new layer of skin forms, the old scarfskin and the cotton come off together, leaving a whole smooth surface below.

If the blistered surface become red and painful, disturbing the patient and making him feverish, an arrowroot or slippery-elm poultice will afford relief. In such cases Prof. Gross recommends the application of common white-lead paint, as the most soothing of all dressings. It should be put on in a thick layer, covered with cotton and confined by a bandage.

When the blister is to be kept open, instead of puncturing the bladder with a needle, the whole of the raised skin should be carefully clipped off with a pair of scissors, and the ointment of savin or some other irritating ointment applied. The part must be covered constantly with a poultice or moist cloths, and, whenever the discharge lessens a little, more of the irritating ointment used.

Instead of the common fly-blister, *cantharidal collodion* is a very convenient and neat application for raising a blister. It can be obtained from any druggist in a bottle. It acts more quickly than the ordinary blister. Apply it by means of a camel's-hair brush. Cover the surface to be blistered

thoroughly with it, and lay over it at once a piece of oiled silk, paper, or muslin, to prevent the evaporation of the solution. Cantharidal collodion can be applied evenly to the skin, and cannot slip out of its place, as sometimes happens with an ordinary blistering plaster.

Cantharidine blistering tissue is also a very elegant preparation for blistering purposes. It can be obtained from the best druggists. Its chief advantages are that it can be quickly adjusted and taken off, that it acts quickly, and that it does not give rise to sores nor strangury.

HOW TO BLISTER QUICKLY.

Sometimes it is necessary to blister the skin immediately, as for instance in croup, when, if the disease be not speedily checked, death may result. A stick of lunar caustic rubbed over the surface will often raise a blister in a few minutes. A sponge dipped in boiling water and applied will have the same effect. Of course, this is a painful procedure, and only to be resorted to in an emergency. The application of a mixture of equal parts of powdered hartshorn and lard will form a blister in five or six minutes.

THE APPLICATION OF LEECHES.

Leeches are quite frequently ordered by the physician, and their application often falls to the lot of the nurse. Some directions, therefore, in regard to

the manner of using them will be of value to her, especially as, if she be not accustomed to handling them, the bare idea of touching one may be repugnant to her. This repugnance is, perhaps, natural against an animal whose instincts, however serviceable they may be to us, lead it to suck our life-blood.

The foreign leeches—the Swiss, German, French, and Spanish—are better than our own American leeches, though smaller in size. The size of a leech has nothing to do with its usefulness, a small, hungry, active one taking more blood than a large, heavy, sluggish one, which falls into a state of stupor in the midst of its work. The American leech is not, therefore, often employed, as it is difficult to get it to bite, and when it does take hold it generally sucks idly.

The leech, though such a voracious, is a very dainty animal. It is a fastidious epicure in its way, and its repast must be carefully prepared or it will not touch it. The part on which the leech is to be applied must be nicely cleansed and freed from hair. Not only must dust and dirt be removed, but the acidity of the skin from perspiration and the presence of any strong perfume are to be avoided. When the skin is greasy, it is to be washed with soap and warm water, in which a little borax has been dissolved. If the leech be applied about the head, the hair of the part must be shaved off, and the surrounding hair cut to prevent irritation or festering of the leech-bites. The precaution of cleansing well the part to which the leech is applied, by warm water and soap, and then with clean hot water, and drying it so that neither taste, smell,

nor dampness remains, is not to be overlooked; for, if neglected, the delicate leech will turn with loathing from his task, and all attempts to coax him back will be vain, much to the annoyance of both patient and nurse.

HOW TO MAKE THE LEECH TAKE HOLD.

If there be a number of leeches to be applied, they are best placed in a tumbler or wineglass, which is then inverted over the part, thus preventing them from crawling about. Sometimes it happens that they will disregard their professional duties, and, instead of going to work, will wander about the sides of the glass, and exhaust the patience of the sufferer and the nurse by their dilatory proceedings. This loss of time and patience may be prevented by rinsing the glass with vinegar and water, and wiping it lightly before putting the leeches in. The acid coating on the inner surface of the glass will not only prevent them from sticking to it, but act as an irritant to excite them to bite. A novel and quaint way of applying leeches is said to be in use by the peasantry of some parts of Europe. About one-third from the top of a sour apple is cut off, and a smaller piece from the stem end. The inside is then scooped out, so as to form a kind of a cup. The lower end is then placed on the part to be leeched, the leeches thrown in, and the top piece held firmly on as a cover. The result is stated to be always satisfactory, the leeches showing a decided distaste for adhering to the walls of their

disagreeable prison. Another prompt and efficacious method of applying them is to hold a warm napkin in the hollow of the hand, and have the leeches dropped into it. They dislike dry warmth, and will, therefore, seize hold of the skin the instant they are applied to it, which should be of course immediately. They also dislike a cold surface; therefore, if the part to which they are applied feels cold, it must be warmed by holding on it for a moment a spongeful of warm water, and then drying.

If these precautions have all been taken, and still the leeches will not take hold, apply a little warm sweetened milk to the part. If the leeches be sluggish, immersing them for a few minutes in some beer will enliven them and excite them to bite.

HOW TO HANDLE LEECHES.

The nurse, unfamiliar with the leech, does not know how, and dreads very much to handle it. Now, in order to apply it, it must be handled; therefore, this repugnance has to be overcome. They can be taken up with a towel. Or, what is still better, they may be managed by tying a handkerchief loosely over the hand, for the freer use of the fingers. Under these circumstances, the most voracious leech, as has been wittily said, would no more attempt to fasten on the cloth than the nurse to bite the dining-room door in search of a dinner. The leech should be held towards the tail end, and never too tightly, for, if grasped too firmly, it will be more intent on getting away than on

doing what is wanted of it. If you cannot tell their heads from their tails, follow the advice which has been given to "throw them upon a plate, and they will soon crawl about, and, like Little Bopeep's flock, carry their tails behind them."

Sometimes it is difficult to get all the leeches to stay in the glass; as fast as one is put in, another will crawl out. To overcome this difficulty, cover the glass with a piece of paper twisted around the edge in the same manner as one would cover a jelly pot; then cut a small opening in the centre of this paper cover, drop the leeches through, and invert the glass, paper and all, on the spot to be leeched; then slip the paper from under, and hold the glass firmly over the place, so as not to admit any fresh air, until the leeches have all taken hold. When all are on, remove the glass, and leave them perfectly undisturbed.

TO MAKE THE LEECHES WORK.

Occasionally it will be noticed that one of the leeches is not working like its fellows. It will be seen to curl up and remain idle, as will be evident from the fact that it is not increasing in size nor presenting the appearance of sweating, such as will be observed in its more active co-laborers. Under these circumstances, it should be gently lifted off and put for a few minutes in a glass of beer or a tumbler of cold water, to which a teaspoonful of vinegar has been added; then wipe it dry, and return it, by folding it

in a piece of soft rag, so as to allow only its head to protrude, and thus direct it by the fingers to its place.

The leeches should not be grouped too close together, but permitted to attach themselves at a little distance apart. The leech must never be pulled off. It will drop off of its own accord so soon as it has taken its fill. Until then, it ought not to be disturbed. The drawing of it violently away not only irritates the part, but may leave a portion of the jaw of the leech in the wound, which may excite severe and very painful inflammation.

THE NUMBER OF LEECHES TO BE APPLIED.

This varies with the nature of the affection, the strength and age of the patient, and the locality leeched. From one to several dozens are employed, according to circumstances. Children can rarely bear more than from three to six. In the case of an infant, a single leech has been followed by dangerous depression of the system. To very young children, leeches should be applied with caution. In adults, a common number is from fifteen to twenty at one time.

HOW TO LEECH NEAR THE EYE OR MOUTH.

A leech is often ordered near the eye, and patients not unfrequently tremble at the idea of having so bloodthirsty a little animal near so delicate an organ. This nervous feeling may be overcome, and the eye perfectly protected, by gumming over it a piece of

tissue paper, and making a hole through it where the leech is to suck.

When the leech is applied near the mouth, or to the lips or gums, a natural fear arises lest it should slip down the throat. Although really no harm would result from the mishap, further than the taking of a dose of oil or an emetic of salt and mustard, for the leech could not adhere to the coats of the stomach, yet, in order to spare the feelings of the patient, it is important to make such a sickening accident impossible. This is readily done by placing a piece of card over the teeth. If the gum is to be leeched, the card is to be perforated over the spot.

PARTS NOT TO BE LEECHED.

The application of leeches to the face or neck is to be avoided, if possible. This is especially the case with a female patient, for the bites of the animals may be followed by little scars.

Leeches are never to be applied to the eyelids nor other parts where there is loose tissue under the skin. They should be put around an inflamed part, and never in the centre or focus of the inflammation.

THE REMOVAL OF THE LEECHES.

The leeches, as we have said, should never be detached, but suffered to fall off when they have satisfied themselves. When this time approaches, they must be carefully watched to prevent their falling in among the bedclothes, an accident which

would soil the bed greatly. A slight motion will show that they are near the end of their repast, when they can readily be secured as they fall. They are at once to be thrown into a dark-colored wine or porter bottle, half full of water, and a cork put in, for there is air enough in the bottle for their support. After two-thirds of them are off, the remainder can easily be detached by dropping a grain or two of salt on their heads. As soon as the bleeding has ceased, sprinkle the part with some powdered starch, and cover with a piece of soft, dry cloth.

TO PROMOTE THE BLEEDING.

Sometimes it is desired to continue the bleeding after the removal of the leeches. This can be accomplished by sponging the part with warm water, and covering it by flannel cloths, which have been immersed in hot water. These hot, moist cloths are to be kept on, and renewed during half an hour or an hour or two, according to the amount of blood desired.

TO STOP THE BLEEDING.

Sometimes the bleeding is too profuse, and it is desirable to check it. This is especially apt to be the case with children, with whom the application of leeches is, in some instances, followed by copious and even alarming loss of blood.

One of the best applications in these cases is a piece of dry tinder, bound with some pressure upon

the part. Or, cover the part with a piece of lint, which is to be left on until the blood has coagulated into a kind of crust. Or, a piece of cotton-wool or of a beaver hat may be bound firmly on the part. Or, a cobweb spread upon it. The application of cold water and pressure are usually sufficient. What is better, however, is to wet some lint in a mixture of vinegar and water, or in a strong solution of alum. In severe cases, which rarely occur, these means failing, Monsell's solution of iron is to be obtained from the druggist and applied on lint, or a stick of lunar caustic is to be sharpened to a fine point and inserted into the little wound for a moment.

THE AMOUNT OF BLOOD TAKEN.

The best foreign leeches will draw, each, from half to three-fourths of an ounce of blood. The American leech not more than one-fourth as much. This difference is to be borne in mind in choosing and applying the leeches.

HOW TO TAKE CARE OF THE LEECHES.

After the leeches have remained awhile in the water in a dark place, in which they were first thrown as directed, the water should be changed. Rain-water is to be preferred. The water is to be changed once or twice a day so long as it remains tinged with any blood. The dead leeches are to be carefully removed, for their putrefaction would soon destroy the rest. A

little pond mud or common earth is then to be thrown into the water, into which the leech will burrow and cleanse itself, in accordance with the instincts of its nature, far more effectively than any art can do it. Leeches should never be squeezed nor placed upon salt, disgusting and barbarous practices both, which injure or destroy the animals.

A damp cellar is the best place to keep the leeches in. The water should be changed as often as once every week.

DIRECTIONS FOR CUPPING.

There are two kinds of cupping. One is a method of bleeding, and requires the use of surgical instruments. It should, therefore, only be performed by the physician. The other consists not in abstracting blood, but in drawing it to the surface. It is, therefore, called dry cupping, in contradistinction to the other known as wet cupping.

Dry cups are useful in rheumatic affections, and in various diseases of the brain and spinal cord, of the chest, and of the larger joints. A knowledge of the proper method of applying a dry cup is readily acquired, and but little practice is needed to do it well. An ordinary tumbler, or *thick-rimmed* jelly jar, or wine-glass, makes a good cupping-glass. Hold the glass inverted for a few moments over a flame, or immerse it in hot water and before it gets cool apply it upon the skin; or, what is better, take a little pellet of cotton or paper and wet it with alcohol, set it on fire

and throw it in the glass, which then, in a moment, invert over the skin. There is no danger of the burning pellet hurting the skin, as would at first be supposed. It is extinguished in a second, and causes absolutely no pain, if the rim of the glass be firmly pressed into the skin. Allow the glass to remain on the part for a half hour or longer. The skin will be reddened and rise up into the interior of the glass.

In order to remove the glass, press the skin down at one side of the edge so as to tilt the glass and let in the air at one spot, when it will easily come off.

Cupping-glasses are now made, and can be had of the druggist, which are very convenient. They consist simply of a glass the top of which is covered with an India-rubber ball and the bottom open. Indent with the finger this round rubber top, place the glass upon the skin, let go of the rubber, and the glass will adhere firmly, the skin rising up rapidly inside.

DIRECTIONS FOR THE ADMINISTRATION OF INJECTIONS.

Injections (or *enemas* or *clyster* as they are also called) are fluid medicines thrown into the bowels to accomplish one of several purposes. Their most frequent use is to act as purgatives and clear the lower bowel. They are also sometimes needed to check diarrhœa, when the fluid selected is an astringent; and sometimes to stop bleeding from the bowels. In the latter cases the quantity injected is smaller than when

a purgative effect is desired, and, of course, the medicine chosen is different. As every parent should be able to administer an injection to a child, and every nurse to a patient, we shall give some plain directions as to the manner of injecting and as to the solutions to be used for the purpose.

In this connection we cannot do better than to quote the concise cautions of Prof. Gross in his work on surgery, which are stated in language intelligible to every reader. "The administration of injections is seldom performed with the care and attention which its importance demands. It is an operation which any one is supposed to be capable of executing, and the consequence is that it is generally done in a very awkward and bungling manner, without at all attaining the object for which it is undertaken. Simple as apparently it is, it requires an amount of skill which few of those who are intrusted with its performance possess. To answer the purpose for which it is intended, the injection should, in the first place, be accurately adapted, by its quantity and quality, to the capacity and tolerance of the bowel; and, in the second place, it should be administered in such a manner as not to pain, irritate, or injure the parts. Whatever may be the object of the enema, whether purgative, stimulant, astringent, or anodyne, no air is to be introduced with it, as this is always productive of pain, and frequently completely frustrates the design of the operation. When it is desired to retain the injection for some time, and the bowel is exquisitely irritable, manifesting a constant inclina-

tion to throw off its contents, the end may sometimes be attained by the pressure of a warm cloth against the fundament. When the patient finds it necessary to employ injections habitually, a self-injecting instrument, capable of holding a pint, and furnished with a long, curved nozzle, answers an excellent purpose, and may be used by the patient in the recumbent or semi-erect posture, as he may prefer."

The best instrument is the hand-ball or self-acting syringe. It is to be preferred to any of the piston syringes. It consists of two rubber tubes connected in the middle by a ball or sac of rubber. The arrangement of valves is such that the fluid can only pass into the ball from one side through one tube, and only out on the other through the other tube. The free end of the tube, which conducts the fluid into the ball, is placed in the solution to be injected; then, by grasping the ball, compressing and relaxing it, the water is drawn into this sac, and thence pressed out through the other tube, the end of which is placed in the bowel. The advantage of this arrangement is that it is not necessary ever to take out and reintroduce the nozzle, in order to refill the syringe, as is the case with a piston syringe; for a continuous stream is obtained from the basin to the bowel. Neither is there any danger of wounding the bowel, which accident is liable to occur from the introduction of the long, slender nozzle, attached to the large metal or hard rubber chamber of the old-fashioned syringe.

The amount of fluid proper for a purgative injection is a pint for an adult; for a young person, half a pint;

for a child, a gill; and for an infant, a wineglassful, or half a gill. When the injection is employed to relieve pain, not more than one or two tablespoonsful should be thrown into the bowel, by means of a small syringe. The injection should be warm, and should not be given when the patient is in a perspiration.

We append a few receipts for common purgative and anodyne injections.

A simple Purgative Injection.

Take of—
Common salt,
Molasses, each a tablespoonful.
Warm water, a pint. Dissolve.
A small piece of soap may be added with advantage.

This is the proper quantity for an adult; for a child one-fourth, and an infant one-eighth of this, as we have explained.

Soap Injection.

Take of—
Yellow soap, a quarter of a pound.
Boiling water, a pint.
Cut the soap up into shavings, pour the boiling water over, and beat up till dissolved, and then, when sufficiently cool, use.

Castor-oil Injection.

Take of—
Castor oil, a wineglassful.
White starch, a teaspoonful.
Rub the oil gradually into the starch, and add a pint of soap and water, or of thin gruel.

Turpentine Injection.

Take of—
Oil of turpentine, a teaspoonful.
Beat up with the yelk of an egg, and add half a pint of thin gruel.

Soothing Injection.

Scrape up half a pound of the roots of Marshmallow. Simmer in a quart of water until reduced to a pint.

Anodyne Injection.

Take of—
Laudanum, thirty to forty drops.
Warm milk (or mucilage), one or two tablespoonsful.

This is the proper dose for an adult.

For receipts for nutritious injections, see page 514.

THE DOSES OF THE MORE COMMON MEDICINES.

We consider it important that the mother and nurse should be familiar with the doses of those medicines which are in general use. With this information many accidents would be avoided. We have more than once in our practice been startled by the ignorance of the doses of common and powerful medicines displayed by those otherwise well informed. We have known mothers to have a very exaggerated notion of the dose of laudanum or of paregoric proper for a child. Many children, through ignorance, are danger-

ously dosed with active drugs. Fatal results would doubtless be of more frequent occurrence, were it not for the fact that druggists are very apt to furnish families with a much weaker preparation than the officinal compounds which they use in prescriptions.

HOW TO TELL THE DOSE FOR A CHILD.

The doses which we give below are for adults. For children, *the doses must be diminished in the proportion of the age to the age increased by* 12.

For example: if the child be two years of age, we diminish the adult dose by $\frac{1}{7}$ for the age of the child (2), divided by the age of the child plus 12$=\frac{2}{2+12}=\frac{1}{7}$.

Again, if the child be six years of age, we diminish the adult dose by $\frac{1}{3}$, for by dividing the age of the child by the age of the child plus 12, we have $\frac{6}{6+12}=\frac{6}{18}=\frac{1}{3}$.

At two years of age, therefore, the child's dose of medicine is one-seventh of the adult's; at six years of age, one-third.

This rule for ascertaining the dose of medicine for a child at any age from the dose for an adult, is one easily remembered, and we trust it will be committed to memory by every reader of this book.

In the list given below, we mention only those preparations which are familiar to every household. It is, of course, useless to give the doses of those drugs which are unknown to people in general, and which are only administered in the form of prescriptions. The dose of every prescription should be upon the bottle, package, or box, and *kept there.* No prescription

without a label should be permitted to remain in the house.

DOSES FOR ADULTS.

Black drop, 5 to 10 drops.
Blue mass, 2 to 4 grains.
Bromide of potassium, 15 to 30 grains.
Calomel, 2 to 10 grains.
Compound cathartic pills, 1 to 3.
Castor oil, one to two tablespoonsful.
Cod-liver oil, a dessertspoonful to a tablespoonful.
Coxe's hive syrup, 10 drops to a teaspoonful.
Cream of tartar, one to two teaspoonsful.
Donovan's solution (of arsenic and iodine), 5 to 15 drops.
Dover's powder, 5 to 10 grains.
Ergot, the powder, 20 grains.
" the wine, a teaspoonful.
" fluid extract, 20 to 30 drops.
Fowler's solution of arsenic, 3 to 15 drops.
Gentian, powder, 10 to 30 grains.
" compound tincture, one to two teaspoonsful.
Ginger, tincture, 10 drops to a teaspoonful.
" powder, 10 to 20 grains.
Gray powder, 2 to 20 grains.
Hoffman's anodyne, one to two teaspoonsful.
Huxham's tincture of bark, a teaspoonful to a tablespoonful.
Ipecacuanha, powder, 1 to 2 grains (as an emetic, 15 to 20 grains).

Ipecacuanha, syrup, 5 to 20 drops (as an emetic, one to two teaspoonsful).
Iodide of potassium, 2 to 10 grains.
Iron, syrup of iodide, 15 to 30 drops.
Jalap, 5 to 15 grains.
" compound powder of, 10 to 20 grains.
Laudanum, 15 to 25 drops.
Lugol's solution (of iodine), 3 to 10 drops.
Magnesia, a teaspoonful.
Morphia, $\frac{1}{16}$ to $\frac{1}{4}$ grain.
Muriatic tincture of iron, 10 to 20 drops.
Paregoric, a teaspoonful to a tablespoonful.
Peppermint, essence of, 10 to 40 drops.
Podophyllin, $\frac{1}{8}$ to 1 grain.
Quinine, 2 to 5 grains.
Rhubarb, 5 to 20 grains.
" syrup, one to two teaspoonsful.
Santonin, 2 to 3 grains.
Sarsaparilla, compound syrup, tablespoonful.
Senna, 30 to 60 grains.
Spirits of mindererus, tablespoonful.
Squills, powder, 1 grain.
" syrup, teaspoonful.
Sweet spirits of nitre, 10 drops to teaspoonful.
Tartar emetic, $\frac{1}{4}$ to 1 grain (emetic, 1 to 2 grains).
Turpentine, spirits of, 5 to 30 drops.
Valerian, tincture of, teaspoonful.
Wild cherry, syrup, teaspoonful to tablespoonful.
Wine of opium, dose same as that of laudanum.

These are the doses for adults; to find the dose for a child, apply the rule on page 549.

HOW TO MEASURE MEDICINES.

A teaspoonful is equal to one fluidrachm.
A dessertspoonful is equal to two fluidrachms.
A tablespoonful is equal to half a fluidounce.
A wineglassful is equal to two fluidounces.
A gill mug or teacupful is equal to four fluidounces.
A tumblerful is equal to eight fluidounces.

Consequently,

A pint (16 fluidounces) contains two tumblersful, or eight wineglassesful.
A half pint (8 fluidounces) contains one tumblerful, or four wineglassesful.
A gill (4 fluidounces) contains two wineglassesful, or eight tablespoonsful.
A half gill (2 fluidounces) contains a wineglassful, or four tablespoonsful.

The *medicine glass*, described on page 426, is the safest and most accurate measure for medicines.

Dropping Medicines.—The size of the drop of different liquids depends upon the character of the liquid, the rapidity with which it is dropped, and the shape and size of the mouth of the bottle from which it is dropped.

We give below a

TABLE SHOWING THE NUMBER OF DROPS OF DIFFERENT MEDICINES IN A TEASPOONFUL (FLUIDRACHM).

	DROPS.
Laudanum	120
Wine of opium	78
Fowler's solution of arsenic . . .	57
Muriatic tincture of iron . . .	132
Water	48
Water of ammonia, strong . . .	54
" " weak . . .	45

Druggists dispense fluid medicines by means of the *wine measure.* This measure we give below, with the signs annexed:—

Apothecaries' or Wine Measure.

The gallon, C	contains	eight pints, O.
The pint		sixteen fluidounces, f℥.
The fluidounce		eight fluidrachms, f℥ .
The fluidrachm		sixty minims, ♏.

Druggists dispense solid measures by means of *Troy weight,* which we give below, with the signs annexed:—

Table of Apothecaries' Weight.

The pound, ℔	contains	twelve ounces, ℥.
The ounce		eight drachms, ʒ.
The drachm		three scruples, ℈.
The scruple		twenty grains, gr.

Physicians, in writing their prescriptions, use these tables for ordering the quantities of the different

articles prescribed, employing for this purpose the signs we have annexed to the above tables. They decide first upon the medicines to be given in the prescription, then upon the dose of each they wish to administer, and then upon the number of doses in the prescription, which number depends upon the length of time the prescription is intended to last, and then, in order to make up the recipe, they multiply the dose of each ingredient by the number of doses in the whole mixture. For instance, suppose the doctor wishes to give a febrifuge, and decides upon administering tartar emetic, sweet spirits of nitre, spirits of mindererus, and water. He concludes to give of tartar emetic $\frac{1}{12}$ of a grain; of sweet spirits of nitre, $\frac{1}{3}$ teaspoonful ($\frac{1}{3}$ fluidrachm); of spirits of mindererus, a teaspoonful (1 fluidrachm); in about three teaspoonsful (3 fluidrachms) of water. He wishes to give three doses a day for four days, consequently he wants his mixture to contain 12 doses in all. He therefore multiplies each of the above doses by 12, and obtains the following prescription:—

℞. Tartar emetic, 1 gr.
Sweet spirits of nitre, f℥iv.
Spirits of mindererus, f℥iss.
Water, f℥iv. M.
Directions—A tablespoonful three times a day.

These calculations are all made mentally, and, by practice, with great rapidity. Most physicians use in their prescriptions the Latin names of the drugs, although some now employ altogether the English names.

THE TIME OF THE DAY TO ADMINISTER MEDICINES.

It is important that the rest of the patient shall not be disturbed at night. The giving of *purgative medicines* should therefore be so timed that their operation may be expected during the day. When the bowels are not irritable, and when the medicine is not a very powerful purgative, this may be accomplished by giving the dose *late at night*, just before sleeping; otherwise the best time is early in the morning.

Emetics are preferably administered in the evening, for their action is apt to be followed by drowsiness and a tendency to perspiration, which it is desirable to promote.

Medicines designed to produce perspiration, like sweet spirits of nitre, spirits of mindererus, hot drinks, etc., should not be given on a full stomach, but only after the work of digestion is over. While the stomach is occupied with the food in it, the nervous force of the body is directed there, and the glands of the skin are less disposed to action.

In some cases, the proper hours for giving the doses of medicine vary with the stage of the disease. Thus a dose of opium will increase the fever, add to the thirst and restlessness, or give tranquillity and sleep, according to the temperature of the body at the time of the administration. For this reason, when an evening dose of opium is ordered by the physician in cases of fever, the best time for administering it is very late in the evening or one or two o'clock in the

morning, when the skin is becoming less hot and more moist.

The *intervals between each dose* of medicine will be regulated by the physician in charge. It of course varies with the nature of the remedy, the object sought to be accomplished, the nature of the disease, and the condition of the patient. The effects of quick stimulants, like spirits of ammonia and Hoffman's anodyne, are very fleeting, and must, therefore, in cases of great prostration, be repeated at short intervals. So, also, medicines which act upon the skin to produce perspiration, must be given sufficiently often not to let the impression they have made pass away before renewal. In this connection it should be recollected that certain medicines, prominently mercury and lead, have the power of *accumulating* in the system when administered in small doses frequently repeated. This danger of accumulation must be guarded against. It ought to be known, also, that the various preparations of opium and morphia rarely produce their full effect before three-quarters of an hour after administration. Before repeating a dose, therefore, this time should be allowed to elapse, in order that the complete effect of the previous dose may be known.

Constitutional peculiarities in regard to the effects of medicines are frequently met with, and often occasion much confusion and alarm. Some persons, for instance, cannot take *opium* nor any of the salts of morphia. This anodyne, instead of acting upon them as it does upon others, produces a state of excitement and abnormal wakefulness. In those peculiarly sus-

ceptible to the action of *mercury*, the external use of blue ointment has been known to produce salivation, although but one application was made, and that of a very small quantity. On the contrary, there are those upon whom it is difficult to produce the full effects of this drug, in however large or frequently repeated doses it may be given. *Powdered ipecacuanha* occasions in quite a number of people attacks of shortness of breath, asthmatic seizures in fact. A case is related of a lady who could not take even a small dose of *powdered* rhubarb without an erysipelatous redness immediately showing itself on the skin, and yet she could take the same drug in the form of a tea without injury.

These constitutional peculiarities are not confined to medicines, they are met with in regard to common articles of food. The venerable professor of the practice of medicine in the Jefferson Medical College, Dr. Dickson, says on this topic: "The most innocent, nay, the choicest articles of food, are injurious to some persons by an obscure and inexplicable unadaptedness. I can add to the great number of such, which may be found in the books, a very remarkable instance. I knew a lady who suffered invariably from oppressive nausea, and frequently vomiting also, if she partook of anything containing the smallest portion of egg mingled with it in any way. There was in this case, too, an almost incredible acuteness of perception, forming an instinctive safeguard against any mistake; she was aware of the presence of an egg, whether cooked or raw, and even became restless and uneasy

when an unbroken egg was brought near her. The article, being easy of concealment, was often experimented with, and the result always the same; she was rendered uncomfortable, became sick, and complained that she was annoyed by the smell and flavor until it was removed. It is possible that this instinctive revolt against articles injurious from constitutional peculiarity may not exist; nay, it is possible every one may have known such examples, indeed, that an individual may be specially fond of what is specially hurtful to him; and this should lead every one who labors under indigestion to inquiry and experiment, that he may discover and avoid the noxious food." A similar instance of dislike for eggs is mentioned by Donatus, who tells of a boy whose jaws swelled, whose face broke out in spots, and whose lips frothed, whenever he eat an egg. Mussels and some other forms of shell-fish are always poisonous to some people, although in general they are a harmless and healthful food.

The odors of food or medicine, or certain powerful perfumes, produce in some individuals very peculiar and distressing symptoms. Pope Pius VII. had such an antipathy to musk, that on one occasion of presentation, an individual of the company having been scented with that perfume, he was obliged to dismiss the party almost immediately.

These peculiarities are not confined to individuals, they extend to large bodies of men, constituting national idiosyncrasies. The people of the Orient, on account of their temperament, are able to bear with

comparative impunity larger amounts of alcoholic drinks, opium, and tobacco than Americans or Europeans. It has been said that the Chinese have a susceptibility to opium, like wax to the seal. Although they use opium to excess, neither their intelligence nor physical stamina is apparently affected by it. So also the indolent Turk consumes enormous amounts of coffee, opium, and tobacco, and yet breaks down only exceptionally. Education and early habits, as well as climatic influences, give rise to these often very curious and extraordinary national peculiarities. The refined ancients regarded the flavor of citron with disgust, but deemed the odor of putrid fish so exquisite that they carried it about on their persons in caskets of onyx, as a favorite perfume. The Arctic explorers all dwell upon the fondness shown by the Greenlanders for their train oil. Dr. Heberden mentions a town in North America, where the spring-water is brackish. The inhabitants, when they visit neighboring localities with pure water, prefer to put salt with their tea, coffee, or punch, in order, as they say, "to make it taste as it should do."

We have detailed at some length these constitutional peculiarities, in order to impress upon the mind of our reader one or two important lessons. If there be found in any particular case an extreme susceptibility to any particular remedy or article of food—avoid giving it, for this idiosyncrasy can rarely be safely combated. Again, a knowledge of the existence of constitutional peculiarities should lead people to be careful about drawing sweeping conclusions as to the

effects of drugs and diet. It does not follow that an article of food or medicine which is ordinarily found of benefit in a disease, cannot do harm in some cases of that disease; nor does it follow that because a substance disagrees with one man, that he is right in denouncing its use by all of his fellows. We hope the perusal of the pages we have just penned will, therefore, teach both caution and charity.

Age and sex influence the doses and effects of medicines. Certain drugs are better borne by children than adults. Mercury is one of these. Calomel and gray powder can be given to children in doses almost as large as to adults. Opium, on the contrary, is badly borne by children, and all of its preparations should be administered cautiously to them. Women, because of their more delicate susceptibilities and finer organizations, need smaller quantities of powerful medicines than men. During the monthly periods, pregnancy, and nursing, this is especially true. At these times care must be exercised in the administration of potent remedies.

Habit has much to do with the operation of medicines. As a rule, the longer a drug is taken the less effect it has, and hence the necessity of increasing the dose in order to keep the patient under its influence. This rule is subject, however, to exceptions. Some purgatives, especially certain natural purgative mineral waters, increase in their activity when their use is long continued. The same is true of *lead*, the constitution becoming more and more sensitive to it, instead of being reconciled to it by habit. Emetics

very generally increase in power by repetition. The more frequently antimony or ipecacuanha is given, the smaller, as a rule, will the dose need to be, to produce vomiting. Doubtless the mind has something to do with this, for, after an emetic has been given often, the sight of it, the mention or even the thought of it, is sometimes sufficient to produce sickness and vomiting.

The *strength* of the patient is also to be considered in regulating the dose of a medicine. It is evident, that after a patient has been worn out by long suffering, wakefulness, and fever, he cannot bear so strong a dose as at the commencement of his illness. The nature of the disease determines to some extent the action of a remedy. Thus in fevers emetics act very readily, while in nervous diseases they act more slowly and imperfectly.

When a limb is in whole or part paralyzed, great care must be taken in making use of any external remedy upon it. The vitality of the limb is then impaired, and the skin and flesh are very easily injured. A distinguished surgeon has published an account of a very interesting case in illustration of this principle. The arm of a person became palsied; upon keeping the limb, in consequence of a fracture, in a tub of warm grains for half an hour, the whole hand became blistered in a most alarming manner, and sloughs formed at the extremities of the fingers and underneath the nails, although the mixture in which the arm had been kept *was previously ascertained by the other hand not to be too hot.* A limb deprived of its

usual supply of nervous energy cannot, as this case illustrates, sustain a degree of heat which would not be at all prejudicial to a healthy member. In another case, in which one of the principal nerves of the arm had been divided by a surgeon for the relief of a painful affection, the patient was incapable of washing in water at a temperature that was quite harmless to every healthy part, without blistering and inflaming the hand. Nurses having charge of paralyzed patients should bear these facts in mind, and be careful, in making any external applications to the diseased parts, to graduate the strength and the heat of the application accordingly.

In closing this chapter on the manner of administering and applying medicines, we may be pardoned the space necessary to allude to a curious old superstition, according to which medicine was used upon the substance which had injured the patient, and not upon the patient himself. Thus, if a man were wounded with a sword, some *sympathetic powder*, as it was called, was sprinkled upon the weapon which had made the wound. The blade was then covered with ointment, and dressed two or three times a day. This superstitious practice is frequently alluded to by the poets; for instance, Sir Walter Scott, in the *Lay of the Last Minstrel*:—

"But she has ta'en the broken lance,
And wash'd it from the clotted gore,
And salved the splinter o'er and o'er.

William of Deloraine, in trance,
Whene'er she turn'd it round and round,
Twisted, as if she galled his wound;
Then to her maidens she did say,
That he should be whole man and sound."

So also Dryden, in his *Enchanted Island*:—

"Anoint the sword which pierced him with this
Weapon salve, and wrap it close from air,
Till I have time to visit it again."

Again, in representing Miranda entering with Hippolite's sword wrapt up, the poet records the following conversation:—

Hip. O my wounds pain me. (*She unwraps the sword.*)
Mir. I am come to ease you.
Hip. Alas, I feel the cold air come to me;
My wound shoots worse than ever.
Mir. Does it still grieve you? (*She wipes and anoints the sword.*)
Hip. Now, methinks, there's something laid just upon it.
Mir. Do you find no ease?
Hip. Yes, yes; upon the sudden all this pain
Is leaving me. Sweet heaven, how am I eased!

Belief in this method of treatment by proxy has now few disciples. The superstition has died out, although others, scarcely less absurd, survive. In the language of Lord Bacon, "witches and impostors have always held a competition with physicians."

CHAPTER V.

ACCIDENTS IN THE SICK-ROOM.

CONTENTS.

Fainting; How to ward off impending fainting—Shivering—Vomiting—Convulsions or fits—Delirium—Words uttered during delirium.

THERE are various casualties incident to the sick-room, which deserve at our hands a few words of monition and instruction.

FAINTING

Is an alarming and sometimes a dangerous occurrence. A patient exhausted by disease may be unable to rally from a faint; the heart, having ceased to act, may not resume its pulsations. Hence, the caution which should be impressed upon all nurses never to allow a feeble patient to rise suddenly in bed, for sudden rising is very apt to cause fainting. Hence, also, the importance, in very weak states of the system (particularly after a loss of blood after childbirth, and after there has been a great drain upon the system, as in cholera, diarrhœa, dropsy, and large abscesses), to carefully heed the directions of the medical attendant not to allow the patient to rise at all, for any purpose. Many deaths occur from a disregard of this caution,

frequently given by the doctor, but frequently unheeded by the nurse, because of ignorance of the risk incurred. The greater the debility the greater the danger from fainting, and the greater also the tendency to faint.

To ward off an *impending* fainting fit, give a cup of warm tea, with a teaspoonful or two of brandy, or a few drops of aromatic spirits of ammonia. This is better than plain brandy and water, for the aroma of the tea adds to the stimulant effect. In cases of weak patients suffering from diarrhœa, or to whom laxative medicines have been given, it is well immediately after each operation from the bowels to give a small cup of tea, or preferably beef-tea. This replaces the fluid which has been drained from the system, the loss of which alone, without some such precaution, may induce fainting. The late distinguished physician and physiologist, Dr. Marshall Hall, laid great stress upon this precaution whenever it was necessary to purge a weak patient.

The remedy for fainting is to lay the person flat on the floor or a hard mattress, to forcibly sprinkle the face with cold water, to loosen the dress about the throat, bosom, and waist, and to allow a free access of fresh air. More minute directions will be given for the treatment of fainting when we come to speak of surgical accidents and injuries. (See Index.)

SHIVERING.

Fainting is frequently ushered in by shivering, and a chill is often the first sign that the patient has taken

cold. A copious draft of some warm drink, the wrapping up of the patient warmly in bed, and the application of hot water to the feet, and of warm flannels to the stomach and armpits, constitute the proper treatment.

When the chill is due to a cold just taken, a warm bath is of service, and may often avert serious consequences.

VOMITING.

Delicate persons and children are liable to attacks of vomiting at the outset of an illness. In such cases, nothing is to be done at first excepting to give a little water, in order to assist the stomach in its action. So soon as the retching subsides, the patient should lie down, and have warmth applied to the feet and legs, while the head is made cool.

During illness, and particularly during convalescence, vomiting frequently occurs in the sick-room in consequence of some errors or imprudences in food or exercise. The enfeebled stomach is often overtaxed under the demands made by the reawakened appetite. This is unwise. Too much food ought not to be taken at once. Nausea or vomiting after eating is an indication that the food is improperly prepared, or that too much of it has been swallowed. The stomach can no more do its ordinary work during convalescence than the muscles can do theirs. A full meal is as prostrating as a long walk. This fact is often overlooked, and, the appetite alone being consulted, harm results, the least of which is the rejection of the contents of

the stomach. The remedy in these cases is to eat less, but oftener.

When the vomiting is persistent, of course the attention of the doctor will be called thereto. It often is the first sign that the brain is becoming affected in the course of the disease.

It is always safe to treat vomiting by getting the patient to swallow small pieces of ice, and applying mustard poultices to the feet. The patient should lie down, not sit or stand. Brandy, whiskey, ammonia, and other irritating articles, should not be given, for they only add to the irritability of the already over-irritated stomach. A cupful of thin gruel rapidly swallowed will sometimes stop the retching. A tablespoonful, or, if this cannot be borne, a teaspoonful of iced lime-water and milk (equal parts) every quarter of an hour, is the best food. Broths cannot usually, under these circumstances, be retained.

CONVULSIONS OR FITS.

We have spoken at some length of the signification of convulsions or fits in childhood (page 379). In an adult a fit is a more serious occurrence than in a child. While it lasts, prevent the patient from injuring himself, and apply cold to the head and heat to the feet. The treatment of those diseases characterized by fits, as epilepsy, will occupy us hereafter. (See Index.)

DELIRIUM.

The ravings and low mutterings of the sick justly excite both apprehension and sympathy. Here, unlike in fainting, the trouble is that there is too much blood circulating in the brain, or that the brain-structure is irritated by the presence of some poison in the circulating fluid.

Delirium may take the form of low mutterings, and the patient seem as if in a disturbed dream, or he may be violently excited, even to a state of maniacal fury.

The former condition, in which the delirium is of the passive kind, is met with in low fevers and other exhausting diseases. Bathing the head with a mixture of one part of good cider vinegar to six of water, or applying a mustard plaster to the nape of the neck, will be all that we need suggest to the nurse in this connection, for the attending physician will have charge of the case in this serious stage.

In the active form of delirium, intelligent restraint is necessary to prevent the patient from doing himself great, perhaps fatal, injury. Inasmuch as this state of intense excitement may arise in the absence of the physician, every one should know the importance of gentle but firm and vigilant restraint. The most fearful consequences may result from the want of it, the patient in his insane fury throwing himself out of the window, or suddenly assaulting with fatal cunning and energy some friend whom he imagines his foe. In high delirium, when there is an attempt to get out of

the bed, the patient must be unhesitatingly and determinedly held in check. If necessary, the arms are to be tightly fastened to the sides by a sheet or large towel, and the feet and knees tied together. Feeble women and young children may readily be restrained by drawing the sleeves of the nightgown beyond the hands and tying them over the chest, while the knees and ankles are confined by a silk handkerchief passed around them. As has been said, "some people have a horror of seeing a beloved object thus manacled. But, let them depend upon it, it is the best thing and the kindest that can be done. They are afraid lest the restraint should still further excite the already over-excited brain. But this is false reasoning. The action going on in the brain is the same whether the patient fight against the restraint, or against the imaginary impediments to his free motion, which the disordered mind conjures up. Is it not better that he should exhaust himself thus than knock himself to pieces against the bedposts, or rise and do himself or others some fatal injury?"

In these cases, the feet should be kept warm, and the head cold by the application of cloths wrung out in the coldest water which can be had, or by the use of ice-bladders or bags. Cool sponging of the limbs and body is always grateful and calmative in delirium.

WORDS UTTERED DURING DELIRIUM.

Before dismissing this subject of delirium, it may be well, in the words of another, to "caution timid wives

and relatives, and all whom it may concern, against the notion that whatever a patient may utter in the state of delirium must necessarily have occupied his waking thoughts. It is thought that the poor sufferer, in the vagaries of the half-poisoned brain, goes over again scenes in which he has once been an actor, and thus jealousies and heartburnings arise from what is but the chimera of a disturbed dream. If any wife be disposed to make herself uneasy at the 'wild expressions' of her delirious husband, or the contrary; if any parent or minister of religion be shocked at the depravity of the sentiments uttered by their children, or the members of their flock, let them remember that the mind is turned, as it were, upside down, and that the *very opposite* of the natural disposition may exhibit itself in the ravings of delirium. It is, indeed, true that no expression can come out of the mouth the type or root of which has not had some habitation in the mind; but who is so fortunate—innocent child or modest matron—as not to have seen or heard that which, although it may not have remained long enough to taint, has nevertheless left its mark upon the impressionable mind? Therefore, it would be both wrong and unjust to judge any one, man, woman, or child, by the ravings of delirium. Whatever is so heard should be at once dismissed from the mind and buried in oblivion, as so much 'sound and fury, signifying nothing.'"

The treatment of hemorrhages, of burns and scalds, and other casualties which may occur out of the sick-

room as well as within, will receive our attention when we come to discuss surgical accidents and injuries.

(The index will enable the reader to turn at once to the page on which these or any other subjects are discussed.)

CHAPTER VI.

NOTES AND MAXIMS ON NURSING.

CONTENTS.

Miscellaneous hints, suggestions, and rules on the practical duties of the nurse.

OUR object in this chapter has been to collect a number of useful and tersely stated maxims, short sentences, and paragraphs, upon various subjects connected with the care of the sick. These we have jotted down from our own experience, and culled from our medical reading.

Duties of the Nurse.—The first thing for the nurse to do, is to gain the good-will of the patient. Without that, many of her efforts will fail of their object, and the comfort and consolation which she tenders will be shut out of the heart of the invalid. Cheerfulness and a ready willingness to do all and bear all for the sufferer's sake—for love of him, or, if that cannot be, for the love of God—are the first and among the greatest qualifications of a nurse. But let her beware how she "assumes a virtue if she have it not." The eyes of sickness are often very sharp, and they quickly de-

tect any crack in the ring of the false metal which is offered to them as genuine. If a man or woman does not rise from a sick-bed with feelings of loving thankfulness towards her who has tended him or her during illness, the nursing has not been well performed.

Nightgowns for the very Sick.—A good plan it is to have two or three night-dresses prepared in the following manner. Let them be cut up the front, not the back, as some have recommended, and some tapes to secure the two sides sewn on. It will be found easy to pull off a dress so prepared, and all dragging upon the patient's limbs will be prevented. If he cannot be lifted up, the nightgown may be removed as he lies, and the patient may be drawn on to a fresh one ready open beside him.

Visitors to the Sick-room.—Florence Nightingale says to nurses, these are the visitors who do your patient harm. When you hear him told: 1. That he has nothing the matter with him, and that he wants cheering; 2. That he is committing suicide, and that he wants preventing; 3. That he is the tool of somebody who makes use of him for a purpose; 4. That he will listen to nobody, but is obstinately bent upon his own way; and 5. That he ought to be called to a sense of duty, and is flying in the face of Providence; then know that your patient is receiving all the injury that he can receive from a visitor.

Rules for Nursing.—The following rules are useful for the guidance of the nurse:—

1. In relating what has happened in the intervals of the physician's visits, adhere strictly to the truth, conceal nothing, even by desire of the patient or friends. Nurses too frequently neglect some remedy, or some advice, and attempt to conceal the omission by an equivocation; or, on the other hand, give prohibited food or allow forbidden indulgences, without admitting the truth. However sagacious the physician may be, he can, in this way, be led into serious errors, and the patient thus made to suffer in the end.

2. Follow as closely as possible the directions given for the patient's food, medicine, and treatment. If any deviation becomes absolutely necessary, be prepared to admit the fact.

3. Maintain cheerfulness in speech and demeanor. Never be heard to say, "Oh, he is very bad," or, "That is a bad case." Always assume that suffering will soon be relieved, that recovery is confidently looked for, and that the means employed are the best possible; for this end, inspire hope, not dejection and despair.

4. Never relate stories of other bad cases, or fatal results of diseases, and the like, in the hearing of the sick; nor talk of anything unpleasant in any one's affairs.

5. Carefully preserve the sick-room of the right temperature, clean, and sweet. Put all wetted towels, bed or personal clothing not in use, and all slops and evacuations, at once out of the room.

6. Watch the patient in sleep, to be sure nothing

lies over the mouth or nostrils. Apply a foot-warmer as soon as the least cold is perceptible.

7. Anticipate the time of giving food by ordering it to be ready. Cook nothing in the room. One exception may be allowed to this rule. In long-standing diseases and during convalescence, a patient is often both amused and benefited by preparing tea in his presence; the smell alone is refreshing, and will often excite an appetite for it. Generally, no food should be kept in the room; but in diseases of debility great benefit is sometimes derived from a feeder full of beef-tea left at the patient's side, to be drunk at his will in the night, without the trouble of asking for it.

8. Do nothing in a hurry or bustle; make no noise. Never sit on the sick person's bed. Take care in moving about not to shake the bed. Do everything quietly, calmly, with decision and firmness.

9. Avoid eating anything, such as onions, pickles, and the like, which gives the breath a bad smell. A foul breath is very disagreeable to persons in health, much more in sickness.

The Requirements of the Sick-room.—To sum up the requirements of the sick-room, they are, proper temperature; ventilation; a constant supply of fresh air; scrupulous cleanliness of the person, the clothing, the bedding, the utensils, the room itself; watchfulness and tenderness; a judicious diet; proper regulation of light; oversight of visitors; punctuality and care in the administration and application of medicines: and for all these, the sick must be dependent upon the

nurse. Who should be intrusted with this office? No one can hesitate to answer that women, in nearly all cases, make the best nurses. Happy is the patient who has mother, wife, sister, or daughter, who, to natural affection, adds good common-sense and bodily strength for the office. Such a one will not fail to learn from the experience of others, if not her own, all that can be taught to enable her to fulfil its duties with propriety and discretion.

Time necessary for Cure.—Grave diseases, which have been long generating in the system, will take equal length of time to cure. Let the medicine be taken faithfully, the suitable dietary strictly adhered to, all remedial means carefully followed out, never deceiving the doctor, directly or indirectly; and, lastly, trust firmly in your God, who alone has the power to save you, and put into the minds of those employed to give medical relief the knowledge and skill necessary to prove to man His boundless love and power.

Sudden Death in Children.—In the great majority of instances when death suddenly befalls the infant or young child, it is an *accident;* it is not a necessary result of any disease from which it is suffering. Among the causes of this "accidental" death in sick children are: sudden noises, which startle; a rapid change of temperature, which chills the surface, though only for a moment; a rude awakening from sleep; an over-hasty or over-full meal; any sudden impression on the nervous system; any hasty altera-

tion of posture; in short, any cause whatever, by which the process of breathing may be disturbed. Very weak adult patients sometimes die and are often seriously injured by the same causes.

Causes of "no Appetite."—The absence of appetite in the patient is in many cases due to defect in cooking, to defect in choice of food, or to defect in choice of hours for taking food. Let every nurse inquire whether *her* patient's want of appetite may not be traced to one of these defects.

Pure air is tasteless and free from all smell, but we easily know it, as it conveys unto us its freshness and its exhilarating sensations, making us feel, as we swallow the delicious draft, that it is God's own sweet medicine, the luxurious healing cup which his own hand of Love has sent. Go, early in the morning, to the garret bedside of the poor sick, where the atmosphere in the unventilated room is dense with the corrupting effluvia of filth and disease, and but a few seconds will suffice to prove the power that a vitiated atmosphere can exercise over the system; but go, again, on a summer evening, in the garden or by the seashore, and the offerings of the flowers, or the invigorating freshness of the breeze, will impress you at once with the fact that one is the fount of corrupting mortality in man's small decaying house, the other the gift of unsullied nature, springing from God's beautiful and mysterious laboratory of earth.

"*Place in your kitchen the mottoes*, 'Waste not, want not,' and, 'Feed the poor.' A plate of nice hot dinner from the well-spread table!—what a treat and restorative to the debilitated sick! Have ever such a plate at your board: it is for God himself."—*Mrs. Hardy.*

Care of the Dead.—When death has darkened the household hearth, some chosen kind relative or sympathizing friend should take charge of the door-key of the room where the dead are lying, to prevent the indiscriminate intrusion of the idly curious or impertinent visitor, for it is not uncommon to find, in every class of society, persons who feel a morbid pleasure in looking at a corpse, and pleas are often pressed upon domestics to obtain this gratification, which almost precludes the possibility of refusal. But never, without very strong reasons against it, refuse the request of affection, to take a last look at the remains of the loved or respected. Let the nurse accompany the sufferer into the chamber of death, and make no attempt to check the fast-flowing tears of natural affection; there the oppressed and afflicted soul should be allowed for a while to remain unnoticed while it pours out its sorrows in unrestrained indulgence, thus obtaining a relief which nothing else for the time can bring. But if it be wrong to debar the survivors from entrance into the chamber of death, it is equally injudicious to press an invitation to visit it, and wrong even to propose it. Men, from having less intercourse than women with the sick, the dying, and the dead, are far more timid on these occasions, though the same

reasons may deter both from wishing to see those they love lying in the stiffened grasp of death. Affection has and wishes to retain in the memory a living image, warm with social life, and repels the idea of mingling this with the dark shadow of cold, unsympathizing clay.

Amusement for the Sick.—A genial English nurse writes: "The lightest trifle may often turn the mind from its gloomy tendencies. We once paid a visit to a very learned friend of ours, an eminent antiquary, whom we found in very depressed spirits, endeavoring to find relief in Layard's *Nineveh*, which he threw down immediately on our entrance, to inform us he did not think he should live long. We proposed a game at cats' cradle previous to the catastrophe! so at it we went, and in a very short time the undertaker had quite disappeared from the door."

Children in the Sick-room.—Children are at all times improper inmates of a sick-room. The vitiated atmosphere and the breath of disease are alike injurious to them. Their tender, unformed organs, ever liable, from their delicacy, to infection, may there imbibe the first impression of disease, that may lie dormant for years; and when time has placed its seal of forgetfulness on the dead, it may develop itself in some fatal disorder of which the origin cannot be traced. Again, the constant, fidgety, eager watchfulness of these innocent visitors is a sore disturber of the comfort, and a great trial to the patience of the sufferer, although affection often demands the visit as a solace.

Avoid Alarming the Sick.—A really conscientious medical man will always give the friends warning if there be danger, and until he has given that warning, caution should be observed not to create alarm in the patient; for, as the body is weak, so generally are the nerves, and if the patient is put in train for a cure, it may be rendered wholly abortive by want of judgment in divulging the probable peril, and thus creating fever through excitement.

The Feet of the Sick.—In every kind of illness it is essential that the extremities, the feet especially, be kept warm. Of course, in a burning fever, they will be hot enough, and tepid sponging of them will be the most soothing thing you can do; but in nine cases out of ten, particularly if the illness has endured for any length of time, the feet have a tendency to become too cold.

Care of the Head.—The head should be kept cool in all cases *where the heat of the skin is above the natural standard.* There must be no caps, handkerchiefs, or shawls wrapped about it. If the head be unusually hot, remove the bolster and pillows altogether, and supply their places with horsehair cushions or water-pillows.

Breathing Air.—We know that invalids require *warm* air, but, as we have before stated, this air must be pure. If there be sick persons or habitual invalids in a house, there is greater necessity than under other

circumstances for free ventilation, both for the purpose of giving the invalid pure air, and of removing his exhalations and preventing them from becoming a poison to himself or others. Any house or room, therefore, which is so situated as not to allow of free ventilation without admitting bad air or foul odors from the surrounding neighborhood, is not a fit residence for persons in delicate health, and should as quickly as possible be abandoned.

The Causes of Unclean Air.—The uncleanness of the air in dwellings arises from one or more of these conditions: Emanations from filth *exterior* to the dwelling, which, entering it, contaminates its air or water; filth *within* the dwelling, and operating in the same way; and insufficient outlet for the emanations from the bodies of the inmates.

Neatness of Dress.—The dress of the nurse is not unimportant. In every case it should be simple, neat, and scrupulously clean. The material of which it is made should be soft and supple. Rustling silk and starched muslin are equally out of place in the sick-room; the first annoys the patient's ears, while the latter suggests that the nurse wants to be gadding abroad.

Respect for Human Life.—A bad quality in a nurse is a want of respect for the sanctity of human life. We have sometimes been shocked by noticing an approach to this feeling in old, experienced city nurses. If the

nurse be given to make light of the result of illness; if she be in the habit of saying, "Ah, poor thing! it's a good thing it's gone; it is out of its sufferings; better off where it is now," and so on: or, of saying, if the patient be poor, "Ah, poor creature! he's gone to a better place; it is a happy release for him," etc.; do not trust her. No doubt these expressions are all right, if the spirit which dictates them be all right. In a spiritual point of view, we may all rejoice when any one is released from suffering or misery. But the nurse often excites the suspicion by these remarks that she does not mean them in this light; but that she rejoices her trouble is at an end; that the fractious child is at last quiet; the enfeebled and querulous old man forever silent.

Caution in Regard to Food.—Never give food to a hungry patient recovering from sickness, too finely minced. He is apt to bolt it, to save his weak jaws the trouble of mastication, and thus it will not be sufficiently mixed with the saliva for good digestion. An English physician says that almost the greatest agony he ever witnessed was caused by a neglect of this rule. A gentleman convalescing from an attack of inflammation of the lungs, feeling hungry, devoured at a late dinner a hearty meal of minced veal; it was minced very small and well mixed with gravy, so as to glide down with ease without mastication. In the middle of the night the doctor was called to this person, who was said to be dying. He found him in *too great pain to die*, sitting by a large fire, shivering,

whilst great drops of cold sweat ran down his face and body, which was swathed in two or three blankets. The man was nearly pulseless, and his face wore an expression of the most intense suffering. The pain in the stomach and bowels was indeed excruciating. On learning the indiscretion of the preceding evening, the doctor administered an emetic, when the enemy, in a perfectly undigested state, was ejected from his stomach in immense quantities, and soon after the patient was put to bed in a warm perspiration, with a good full pulse and quite free from pain.

Poultry for the Sick.—No poultry more than one year old is fit for an invalid, except to make broth, or to be boiled to a jelly. Its hard, stringy fibre is far more indigestible than tender mutton, beef, or even pork. The question, when do old hens cease to be *chickens?* is a curious and difficult one to answer. Clearly not until they have passed from the hands of the market people into our own.

Sitting up all Night.—When sitting up all night with the patient, the nurse should loosen her clothes, put on a flannel gown or common loose dress, remove all ligatures from the feet and legs, wear easy slippers and keep the feet raised on a chair, that the circulation may be less labored and that swelling of the legs may be prevented. In cases of contagious diseases, never remain, particularly at night, in a place where a current of air passes over the patient to yourself. In such cases not only is extreme cleanliness necessary

for the patient, but equally so for the nurse, cleanliness being one of the best of disinfectants. When life seems to be fast ebbing, it is usual for the whole household to wish to sit up; but unless immediate dissolution is apprehended, this should not be allowed; nor ought strangers nor unusual persons be admitted to the room of the dying, on the plea of the perfect insensibility of the sufferer, a plea which often does not repose upon fact, for who can tell the precise mental state at this last solemn moment?

Deportment about the Dying.—On the dying bed God is performing His last earthly work with man, and this solemn moment ought not to be profanely made a theatrical exhibition for the gratification of idle curiosity, or the display of morbid or fictitious feeling. All that is needed should be carried on with a gentle solemnity of manner, as if in the presence of the King of kings. The loved and the loving only should be allowed entrance into the room, for their naturally wished-for last fond look or parting kiss. He who is now so visibly unlocking the solemn gates of eternity is still the God of love, who feels for his suffering children when these sweet bands which gently linked together the survivors with the dead are loosened, and "Hew ho wept o'er Lazarus dead" still bears our griefs and carries our sorrows. Let this be our consolation.

Mistaken Zeal.—We have often heard it said, as a proof of devoted affection, that such a wife, mother,

or daughter had been a week or ten days without changing her clothes or taking off her stays. While fully appreciating the feeling which prompted this forgetfulness of self, we feel in duty bound to censure such a practice most fully, and would ask the affectionate victim of these vigils if she would willingly open the window and throw away the last dollar on which the poor sufferer's resources depended, because she still had a few pennies in her pocket or had a friend to whom she could apply in the hour of need? Yet this is what she is actually doing, for her knowledge of the patient's habits, temper, and general wants makes her of more value to the sufferer than any one else. She should, therefore, preserve herself in a fit condition for the performance of her task, by economizing her strength, and using every endeavor for the restoration of her wearied energies.

A Word of Caution as to Contagion.—Never go into a room in which there is a contagious disease, or a strong smell of sickness, when very hot, or in a state of perspiration, or fasting, or hungry. For, in the one case the seeds of disease are absorbed by the pores into the general system, and in the other they are imbibed into it by the craving tissues of the stomach.

Whispering in the Sick-room.—Never allow a whispered message to be brought to the sick-room door. Invalids have a kind of nervous apprehension that whatever is passing has reference to them, and they are consequently very suspicious of anything

that bears the least appearance of concealment; and as they rarely like to admit that they feel curious, they lie and brood over the mystery, to their great and needless injury. Everybody in the house should therefore be enjoined to communicate what they have to say in a clear and distinct manner.

How to Drop Medicine into the Eye.—The nurse is often called upon to drop liquids into the eye—a nervous operation alike to patient and nurse. It is thus done: The patient throws his head very far backwards, and on one side, with the affected eye to the operator, who holds it open at the outer corner with the first and second fingers of the left hand. The patient then turns his eyeball inward, and the nurse drops from the bottle in her right hand, with a finger on its mouth, whatever quantity is required. If either party should be nervous as to excess in this matter, a very good plan is to cut a quill as for a toothpick, with an opening half-way up, into which drop the quantity and pour into the outer corner of the eye.

Aid in Getting in and Out of Bed.—For getting in and out of bed, invalids, particularly heavy persons, should be provided with a pair of crutches, or thick walking-sticks, to rest upon, which will prove a much more efficient support than any woman's arm or aid can be, and will avoid entailing on the nurse that distressing labor and strain upon the spine which in some cases has resulted in permanent disease for her.

Influence of the Mind over the Sense of Pain.—An English surgeon of experience gives a few words of advice on this subject, illustrated by a pertinent anecdote. Let all who have to suffer remember a few simple truths. When they give way, they add greatly to the distress and confusion of those who are with them, they very much hinder their own recovery, and, when the pain is over, reflect upon themselves for not having been braver. It is indeed wonderful what can be done, when a person makes up his mind to grin and bear it, as the soldiers say. Many have even borne up under slow cutting operations or accidents. A curious instance, but a very instructive one, occurred some years ago, before chloroform was discovered. A large, well-made, healthy seaman was brought into the hospital with his leg so terribly crushed that it was necessary to take it off some distance above the knee. The surgeon said to him, "Jack, I am very sorry to have to tell you that the only thing which can be done with this unfortunate leg is to take it off; we cannot save it, you know we cannot splice it or fish it like a mast."

"No," he replied, "I can see that; well, it must be done, it'll never be seaworthy any more. How long will it take doing it?" He was told only a very short time. "Oh, well," he said, 'cut the wreck adrift, and fit a timber one, I'll bear it."

So the limb was taken off without one groan or one word of complaint. But as the house-surgeon was putting on a bandage, he accidentally pricked him with a pin, when he immediately cried out, "Hallo,

Mr. Surgeon, the point of that marling-spike's rather sharp, that's too bad."

The surgeon said, "Why, Jack, how is this? You bore having your leg taken off like a brave fellow, as you are, without speaking one word, and now, when only the point of a pin touches you, you call out?"

"Ah, sir," he said, "don't you see, I made up my mind to have my leg cut off? I told you I'd bear it, but I made no bargain about the pin-sticking business."

Duty of Amusing Sick Children.—This duty is very properly strongly insisted upon by Dr. West in his work on *Diseases of Children.* No rules can, of course, be given how to accomplish this. The little one is to be soothed and pleased by every gentle way that a woman knows. If the child is a baby, sing some little tune to it; or, throwing a flannel wrapper round it, take it in the arms, and, as it is carried about the room, try to hush it to sleep. If the child is older, tell it stories to keep it quiet, and no one who really loves children will be at a loss in finding a story to tell. All children love to hear of what happened to grown people when they were young. Tell them of your own childhood, of what you saw and did when you were little, of the village where you played, of where you went to school, of your church and your clergyman. Or tell the fairy tales that you heard, and your mother before you, and her mother before her, in childhood—the tales of Goody Two Shoes, or Cinderella; Blue Beard, or Beauty and the Beast.

Fairy tales are not too foolish to be told, even although now we have so many good and useful books for children. Young people need amusement sometimes, and children cannot be always reading wise and useful and instructive books. The story which teaches nothing wrong; which does not lead a child to think lightly of what is good and right; which, in short, does no harm, is one that may be told to children without fear, though it may not impart any useful information. God himself has formed this world full not only of useful things, but of things that are beautiful, and which, so far as we can tell, answer no other end than this, that they are lovely to gaze upon, or sweet to smell, and that they give pleasure to man.

Why must Children have Children's Diseases?—The following words of Florence Nightingale have much truth in them. We commend them to the attention of every nurse who has charge of sick children, and of every mother who desires to keep her own little ones well. "There are not a few popular questions in regard to which it is useful at times to ask a question or two; for example, it is commonly thought that children must have what are commonly called 'children's epidemics,' 'current contagions,' etc., in other words, that they are born to have measles, hooping-cough, perhaps even scarlet fever, just as they are born to cut their teeth, if they live. Now, do tell us, why must a child have measles? Oh, because, you say, we cannot keep it from infection—other children have measles—and it must take them—and it is safer

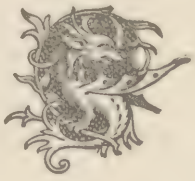
that it should. But why must other children have measles? And if they have, why must yours have them too? If you believed in and observed the laws for preserving the health of houses, which inculcate cleanliness, ventilation, whitewashing, and other means —and which, by the way, *are laws*—as implicitly as you believe in the popular opinion, for it is nothing more than opinion, that your child must have children's epidemics, don't you think that, upon the whole, your child would be more likely to escape altogether?"

A Short Dressing-Gown.—Dr. Hope gives a useful hint on this subject. When a patient is sufficiently well to sit up in bed, a shawl is very inconvenient. The ends dip into the food, and are constantly irritating the patient by getting on to the bit of work going on. Then, again, it must be either fastened so tightly around the body as to confine the arms, or, if they are used, it must be raised so that both they and the chest are exposed. Instead of this, a *flannel jacket* is strongly to be recommended, made very loose about the shoulders and arms, and to button from the neck down the front and at the wrists. The neck and wristbands should be lined with silk or other soft material, so as not to chafe the skin. Let there be two good pockets, one for the handkerchief, and the other for the spectacles, eye-glass, pencil, thimble, and other small things which are always going astray. The season of the year, the kind of room, and nature of the illness, will be a guide as to the warmth of the jacket.

This is quite a different thing from the common long dressing-gown used when a person is out of bed. If the jacket be made of new flannel, it should be well washed with hot water and soap before being made up, or the smell may be very offensive to a person confined to bed. To throw over the shoulders and arms of the patient when he is sitting up in bed for a little while only and not using his hands, there is nothing equal in comfort and safety to the "invalid's wrap," described on page 433.

Importance of Good Nursing.—The Massachusetts Sanitary Commission, in a recent report, wisely say, it is hardly necessary to commend the importance of good nursing in the cure of disease. Let a physician be ever so skilful, and prescribe his remedies with ever so much care and sagacity, if the nurse does not follow his directions, or if she neglects her duty, or performs it unskilfully or imperfectly, or with an improper *disposition*, the remedies will be unsuccessful, and the patient will suffer; and perhaps life is lost as the consequence. On the other hand, let a physician of moderate capacity prescribe with ordinary skill, if his orders are carried into execution by a nurse who understands, loves, and conscientiously discharges her duty, the patient is relieved, and life is preserved as the consequence. It is thus that bad nursing often defeats the intention of the best medical advice, and good nursing often supplies the defects of bad advice. Nursing often does more to cure disease than the physician himself; and, in the prevention of disease

and in the promotion of health, it is of equal and even of greater importance. Many and many a life, which might have been saved, has been lost in the hands of quack nurses, as well as in those of quack doctors.



CHAPTER VII.

CARE OF THE INFIRM.

CONTENTS.

The care of the aged—The care of the insane—The care of the idiot—The care of the inebriate.

IN our present chapter we shall confine ourselves to a few practical remarks in regard to the care of infirm persons, reserving what we have to say upon the treatment of the *diseases* of the aged, and of the mind, until we reach the Third Part of this volume, when we shall have to treat in detail of the principal maladies to which all ages and both sexes are subject.

CARE OF THE AGED.

As we have already written a chapter on the prevention of decrepitude (see page 285), we need not here say more upon the problem of retarding the advance of years. The watchful care of loving eyes and hands can do much towards preserving in the aged mental and physical health and activity, so that when nature at last succumbs, it may be said, in the words of the poet:—

"Of no distemper, of no blast, he died;
But fell like autumn fruit that mellow'd long:
E'en wonder'd at, because it falls no sooner.
Fate seem'd to wind him up for fourscore years;
Yet freshly ran he on six winters more,
Till, like a clock worn out with eating time,
The wheels of weary life at last stood still."

In the care of the aged, one of the first points of importance is to enforce regularity of habits in regard to sleeping. Fortunately, in most cases, this regularity is naturally preferred. Although old persons do not require as much sleep as the young, yet they should retire to bed early in the evening, not later than ten o'clock. The rest, warmth, and horizontal position they have in bed are very beneficial. The sleeplessness often complained of by old people is, in some cases, a delusion. Unknown to themselves they sleep more or less, and are in this manner refreshed. It is said of an old patient of Dr. Day's, that she used to tell him, in most piteous tones, that all she required was sleep. How long it was since "nature's sweet restorer" had last visited her we are afraid to say; but calling upon her one afternoon, he found her lying on her bed, sleeping as soundly and comfortably as any old woman could wish to do. The noise of a person entering the room soon awoke her; she rubbed her eyes, looked up, and said, "all she wanted was sleep; she had not closed her eyes for a month, and that if he could not give her something to procure her sleep, she must infallibly die."

It sometimes happens that old people, who complain at night that when they awake they cannot get to sleep

again, derive benefit from having some light and favorite article of food at the bedside, of which to eat a little. It is said of Louis XVIII., whose "*appetit charmant*" has been much admired, that he always had a cold chicken placed beside his bed, in case hunger should prevent his slumbers. And we know of a hale old gentleman who has never for years gone to bed without having some food at hand.

Warmth of the body is carefully to be preserved in the old. This object is to be accomplished by a proper selection and amount of clothing, and a regard to those principles which we have pointed out in our chapter on the subject (p. 120). There is a great loss of vitality of the skin in old age. This loss is the cause of many of the diseases of the old. Its effects are not only to be combated by judicious clothing, but also by attention to the climate. It is well known that the skin retains its vitality much longer in hot climates. This fact is of value to those old persons in feeble health whose means will permit of a change of climate. This was the practice of one of the most practical of all the nations who have ruled the world; for after a certain age the wealthy Romans changed their residence from Rome to Naples. Without going abroad, many might imitate the Romans in migrating to the south of our own native land. The advantages of the climate of Florida for this purpose are many, and should be more generally known.

For general rules in regard to the diet and exercise of elderly people, we refer our reader to our remarks in

the chapter commencing on page 285. We will merely add a hint from the pen of Mrs. Hardy.

"The old are subject to numerous infirmities, which, even though not accompanied by suffering, demand much attention. From incapacity to take exercise, the perspiratory discharges acquire an impurity which renders the greatest watchfulness imperatively necessary, not only to cleanse, but to keep dry, every part of the skin which is subject to moisture. When this is not properly attended to, sores and excoriations will ensue, which may end in wounds, that exhausted nature has no longer the power to heal, and thus suffering is induced, which may only terminate with existence itself. This point of cleanliness, however disagreeable to the patient, those having charge must maintain the right to see enforced. Better for them to submit to the harmless scolding of the patient, than, for '*peace sake*,' to permit him or her to continue in the offensive self-bath."

CARE OF THE INSANE.

The question whether insane persons are better treated at home or in asylums established for the purpose, is a difficult one to answer. That there is a wide-spread prejudice against insane asylums in the community, it is useless to deny. That this prejudice is now unfounded, it is, perhaps, equally useless to assert. The popular idea of an insane asylum is that of a prison where persons are needlessly and often cruelly deprived of their liberty. The prevalence of

this idea is to be regretted, as it interferes with that early treatment of unhealthy mental symptoms which is so desirable, and which, in many cases, can best be carried on in a well-regulated asylum, where the oversight of skilled physicians, the absence of all disturbing causes, the presence of various healthful means of amusement and exercise, and the generally wholesome mental atmosphere, are of great service in advancing recovery.

An asylum for the insane is not a prison nor a house of correction; it is a hospital. The object of the detention of the inmates is no other than their cure. By all means, let legislative enactments throw every safeguard around the individual, to prevent these institutions from receiving or retaining those who are in good mental health. But, on the other hand, let those who have members of their family suffering from mental disease consider well the advantages of a hospital for the insane, and, before deciding to treat their loved ones at home, let them visit for themselves and examine into the working of the most accessible institution of this sort.

In this connection we wish to quote, with approval, the language in a recent report of the Pennsylvania Hospital. "While some cases get well at home, and do not require a removal from familiar scenes and associations, it must be acknowledged that for a very large proportion of all that occur, this separation is almost indispensable for securing a recovery. The Christian spirit of the age, and the labors of benevolent men and women in nearly every enlightened

country, have provided a class of institutions that offer advantages that can nowhere else be obtained for the great mass of the people. Insanity, then, being placed in the same category as other diseases, with the peculiarity that the most luxurious of homes, conjoined with the happiest surroundings, are not commonly the best places for its treatment, these institutions, thus provided from the necessities of the case, become real hospitals, and nothing else, just as much as the like provision made for treating fever, or any other forms of sickness. The attempt to bring these hospitals for the insane into disrepute, by applying to them and those connected with them the offensive epithets that belong to a past generation, can have no justification, and is unworthy of any honorable man. The public should learn that it is really of importance that the terms used in reference to this disease, the institutions for its treatment, and those connected with them, should be such as are employed when speaking of the same persons or things in any other hospital, in a private mansion, a hotel, or a boarding-house. A room for the sick, or a parlor, or a hall in a hospital, should be so called, as much there as in any other structure; and a nurse or an attendant on the insane is as much a nurse or an attendant in a hospital as in a private house, and in a case of fever. So a proper degree of restraint is no more imprisonment when used in a hospital than it is in a private family, no more so when applied to a case of insanity than in the delirium of fever; nor is that kindly interference which prevents personal injury, soothes ex-

citement, and protects others, any more reprehensible in the one case than in the other. The remedy which does all this, and aids in the recovery of the patient, should have a generous recognition."

If, however, the objection to an asylum be an insuperable one, or the expenses be too great to be met, it is better to send the patient from home. A change of scene, and a removal from the danger of that irritation which is quite certain to be caused by the attempt on the part of any members of the family to exercise necessary restraint over the movements of the patient, are desirable. Arrangements can often be made with some relatives living at a distance to temporarily take charge of the invalid. A visit of this kind, for a few weeks or months, is often of the most decided service, and may result in entire recovery.

It is upon this principle that the governments of Scotland and Belgium have provided for the maintenance of insane patients in *private dwellings*. This method of management is known as the "cottage system," and has produced the best of results. Prof. Charles A. Lee, in a recent report to the American Medical Association, recommends that the State, instead of supporting poor insane patients in public asylums, should make a weekly allowance to families so situated as to be able to take care of them.

CARE OF THE FEEBLE-MINDED AND IDIOTIC.

Unfortunately there are many families in our land saddened by the baleful shadow of mental imbecility

in one or more of their youthful members. Statistics inform us that there is one imbecile in every thirty thousand children. Some of these are found in the mansions of the rich, some in the houses of the poor, and some in the abodes of vice and intemperance.

The care of the feeble-minded resolves itself into one of education—persistent, skilful education of the senses and of the mind. The most wonderful results have been accomplished through well-directed efforts in this direction. Much attention has been paid to this subject in the United States during the last quarter of a century. A little more than twenty years ago there was no educational establishment for idiots in the United States. To-day there are two in New York, two in Massachusetts, one in Connecticut, one in Pennsylvania, one in Ohio, one in Kentucky, one in Illinois, and perhaps one or two others. Over a thousand children are under instruction in these nine establishments.

Dr. Edward Seguin tells us that "twenty-one years ago Dr. Harvey B. Wilbur, then a physician at Barre, Massachusetts, undertook the novel and perilous enterprise of attaching his own fortunes and those of his young family to the task of educating idiotic children. He had no predecessor in this undertaking in this country, and he was sustained in his good work, against the forebodings and ridicule of friends and neighbors, only by the bravery of his wife. After a few years, during which the young couple gave uninterrupted attention to their pupils, even to the extent of keeping the most helpless in their own

bedroom, Dr. Wilbur was called, first to Albany, and subsequently to organize the State institution for this helpless class. In planning this institution, he had no model for reference, nothing but books and theories. It was the first asylum ever expressly built for idiots. His practical knowledge of their wants during the previous two or three years, and his remarkable mechanical skill and peculiar sense of the fitness of things, enabled him to overcome, in an extraordinary degree, the architectural difficulties. Idiotic children require more room, more air, more light, more warmth than other children; all these, and especially the greater amount of room, which is indispensable in any attempt at improving these weak and sluggish natures, he provided for them."

Children are allowed to remain in this training school so long as there is any improvement going on in their condition. They are kept daily in a condition of mental and physical activity, judiciously regulated by attendants, gymnasts, and teachers. The muscles, the senses, and the mental powers are all actively exercised and carefully trained. We have not space here for a full description of the very interesting methods employed for the education of these unfortunates. We merely wish to call the attention of those whom it may concern to the existence and general excellence of these important institutions. No parent, however wealthy, can afford at his home the same advantages for his imbecile child that one of these educational establishments offers. No parent, however poor, should neglect to make the effort to get

his feeble-minded child admission into such a school. There is a State appropriation for the benefit of those unable to defray the necessary expense.

THE CARE OF THE INEBRIATE.

It is difficult at home to do much for the reformation of the inebriate, as many sad wives, weary with well-doing, will testify. Here again organized effort comes to the aid of the family, and provides the guards of an institution. There are in this country, as most of our readers are aware, a number of establishments known as "Inebriate Asylums," in which voluntarily patients can subject themselves to those restraints and those means of treatment which experience has shown to be of most value in overcoming the desire for strong drink. These institutions are peculiar, we believe, to our own country. In Europe they are spoken of as "the American Inebriate Asylums," and are exciting much attention and comment. There is no law, to our knowledge, which will permit of the forcible detention of a drunkard in one of these asylums. In many cases they can be induced to submit themselves voluntarily to treatment there. The results of this treatment are said to be, in very many instances, most satisfactory. Wherever possible, this means of reformation should not be neglected. Drunkenness is very frequently a disease, for which the patient ought to be cared for in an appropriate hospital.

PART III.

DISEASES AND THEIR CURE.

CHAPTER I.

THE FORM AND FUNCTIONS OF THE HUMAN BODY.

CONTENTS.

The external form of man—The bones—The flesh or muscles—The organs or viscera—The contents of the abdomen—The contents of the chest—The contents of the skull—The special senses—External location of parts—The proportions of the human figure.

FAMILIAR as we are with our fellow-men, how few of us have ever thought upon the wonderful mechanism each of us displays, and the perfection of skill visible in our own construction! Such contemplation, however, alluring as it is, is not our present theme, but rather a brief and general description of the human body, which will acquaint our readers with its main features, the location of the principal organs, and the work each of those organs has to do in the promotion of life and health, so that it may more readily be understood what diseases arise when they are disturbed and disordered. A strictly practical

aim, therefore, is before us, and we shall, as usual, attempt to explain in the simplest terms the leading facts of anatomy and physiology.

THE EXTERNAL FORM OF MAN.

In distinction from all lower animals, man stands erect; his brain is above his face, not, as in brutes, behind it; and his outlines present a symmetry and harmony which correspond with the true laws of beauty as developed by mathematics.

It is noticeable that the human system is divided into threefold divisions; and though perhaps of little scientific value, these divisions are convenient ones to remember in studying it.

There are three tissues: the bones, the flesh or muscles, the organs or viscera.

Three cavities: of the skull, of the chest, of the abdomen.

Three functions: reception of nourishment, its use, and the rejection of worn-out articles.

We shall briefly consider each of these.

THE BONES.

The bones are for the purpose of sustaining and protecting the soft parts of the frame. They are hard, white, and durable, composed largely of lime and earthy matter, and vary greatly in form. The skull is globular and hollow, inclosing a cavity which contains the brain. The upper jaw is fastened immovably to it,

while the lower jaw is attached by a joint which allows free motion.

At such a joint as this, and at all where there is motion, the ends of the adjacent bones are fastened together by tough, strong bands of tissue, called ligaments. When through violence these are torn and the bone slips out of its natural position, it is said to be "out of joint," or dislocated.

The backbone, or spinal column, is a chain of small, irregular, rounded bones which extends from the skull down the whole length of the back. The amount of motion between any two of these small bones is small, but the flexibility of the whole column is considerable.

The ribs spring from either side of the backbone at its upper half, and meet at the breastbone in front, inclosing the cavity of the chest, which contains the heart and lungs.

At the lower part of the trunk two wide flat bones extend around from the backbone to the front of the body, inclosing a cavity in which the bladder and other organs are contained. These bones are the points upon which the thigh-bones rest and have to support the weight of the body when erect.

The long round bones of the arms and legs are hollow, and contain the substance familiarly known as marrow. From their length and their greater exposure to accidents, they are more frequently fractured or broken than those of the trunk or head. From the hip to the knee, and from the shoulder to the elbow, there is but one bone; while from the knee to the foot, and from the elbow to the wrist, there are two.

The hands and feet are provided with a large number of small bones.

Taken together, the bones are called the skeleton. Too often its study is looked upon with horror, as associated with ideas of death and the grave; but such sentiments are unworthy the cultivated and Christian mind. For the thought of death should not be shunned, and we all know that

> "Every face, however full,
> Padded round with flesh and fat,
> Is but moulded on a skull."

THE FLESH OR MUSCLES.

The red flesh of animals, such as we see it on the butcher's block, is composed of muscles. If we examine one, we find it is made up of a central body of numerous fibres, and terminates at each end, near where it is attached to the bone, in a dense hard band, which is the sinew or tendon. The central fibres have the power of contracting under the influence of the will, and this it is which gives the power of motion to the body. In all, there are some four hundred muscles in the human body, and thus a very great diversity of motion can be obtained. The fat is deposited between and around the muscles.

THE ORGANS, OR VISCERA.

If we examine a human body from which all the parts have been taken except the bones and flesh, we

perceive that there are three distinct receptacles or cavities, one in the skull, extending down the centre of the spinal column; a second in the chest, surrounded by the ribs, and floored, as it were, by a broad thin muscle called the diaphragm, which is about on a level with the lowest portion of the breastbone; and a third, twice as large as the latter, extending from the diaphragm to the bottom of the trunk, called the cavity of the abdomen.

The purpose of these cavities is to contain the organs by which the processes of life are carried on, and the nobility of their labors, if we may so express ourselves, increases as we ascend from below upwards, from the base of the trunk to the brain.

THE CONTENTS OF THE ABDOMEN.

The cavity of the abdomen is principally occupied by the stomach and intestines, or bowels, the latter one long tube, twenty-five to thirty feet in length, coiled away below the stomach, and extending from it to the lower place of exit. This connected apparatus receives and assorts the food; a portion it changes by the process of digestion into a whitish fluid which is absorbed through the thin walls of the intestines by the bloodvessels, and carried to the heart; the remainder, as unfit to support life, it rejects and passes on to the lower bowels, to be ejected from the body.

In the upper part of the cavity, on the right side is the liver, and on the left the spleen. These organs receive in their loose tissues large quantities of blood,

and are concerned in purifying it, and preparing it to yield more substantial nutriment to the body.

In the lowest part of the cavity are the receptacles for the waste of the body and for the materials it rejects as useless, and here also are the places of exit where it casts these out. The organs which are concerned in the reproduction of the species are also located here.

THE CONTENTS OF THE CHEST.

The upper cavity of the trunk contains on the right side, and on the upper portion of the left side, the lungs; and on the lower portion of the left side the heart.

The latter is a hollow muscle, its cavity divided into two compartments, both constantly filled with blood. It contracts powerfully about every second of time, and drives the vital fluid through the bloodvessels all over the body. All these vessels are connected with the heart. Those which carry it from the left side of the heart are called arteries. They divide and decrease in size as they proceed further from the heart, until they become so small as to be invisible to the naked eye. Then they unite again and increase in size as they approach on their return to the heart, when they are called veins. They pour their contents into the right compartment of the organ.

This constant motion is the *circulation of the blood.* The contraction of the heart is familiarly called its "beating;" and the wave of blood which it drives at every beat through the arteries forms the *pulse*, which

we can feel at the wrist, in the neck, on the temple, and wherever an artery approaches a surface. Physicians lay so much stress on the pulse because it informs them how the great central organ of life is working. It sympathizes with every disorder of the system, and therefore indicates the condition of the health.

The blood in the arteries has a different color from that in the veins; the former is a bright florid red, the latter a dark muddy red. The distinction is very evident on seeing them side by side, and it is an important one to remember, for when we are required to stop bleeding we must act differently when an artery or a vein is cut.

The change of hue takes place in this wise: When the bright arterial blood passes into the minutest vessels, it imparts its nutritive properties to the muscles, and takes from them the worn out particles which they throw off. It passes into the veins, therefore, with a turbid and darkened current, and flows back to the right cavity of the heart in this condition, useless for further purposes of support. But nature is altogether too provident a mistress to throw aside her carefully elaborated stores after a single use. She takes up the venous blood, extracts the dead particles, refines it, restores it through chemical action to its original purity, and sends it back to the left cavity of the heart, to be driven once more through the body in a ceaseless round.

This process of purification takes place in the lungs. The venous blood passes to them from the right cavity

of the heart, traverses their loose substance in myriads of minutest vessels, is exposed to the air, and exhales through the breath its effete particles, returning to the heart, bright, and red, and wholesome. This is the purpose of the lungs, this is why we breathe, and this is why foul and vitiated air so soon and so certainly taints our system.

Were we to cease breathing for but a very few minutes, the impure fluid of the veins would stagnate in the lungs, or pass on into the circulation, unable to afford the nourishment which our bodies cannot subsist without, not even for a minute, and the whole organism must cease once and forever.

The lungs receive their supply of air through the windpipe, which passes up to the mouth, and the motion of breathing, which we do without effort, sleeping and waking, furnishes a constant change of air to be applied to the blood, which is exposed to it in vessels of extremely thin walls.

THE CONTENTS OF THE SKULL.

The hollow interior of the skull is occupied by the brain. When the contents are extracted, the cavity is found to be continuous with a long channel, which extends down the centre of the backbone. This channel is filled with material of similar character to the brain, called the "spinal cord," and from it branches extend to all parts of the body, which branches are the nerves.

The brain, the spinal cord, and the nerves, together

form the "nervous system," and it is through these portions of the body that sensations are carried to the brain, and there taken cognizance of by the mind. Through these, as its instruments, the soul acts; and they convey the mandates of the will to the different muscles. They are, therefore, the most finely organized tissues of the body.

THE SPECIAL SENSES.

The various methods which nature provides for bringing the mind into contact with the matter which surrounds it are the "senses." They are five in number, and used to be known as "the five wits," but among physicians are called "the special senses." They are the sense of sight, the sense of hearing, the sense of smell, the sense of taste, and the sense of touch. Their appropriate organs are the eye, the ear, the nose, the tongue, and the surface of the skin.

In health the sensations these organs perceive are similar in all when excited in a similar manner. But in disease one or more of them become disturbed, and it is part of one's duty in examining the sick to ascertain which of the senses does not perform its function properly. Often, without obvious cause, the patient will complain of hearing a buzzing or ringing sound, or seeing images and figures where none exist, or having a bad taste, or being troubled with a disagreeable odor—all of which are delusions, arising from a disturbed condition of the special senses, and indi-

cating the presence of a diseased state of the person's system.

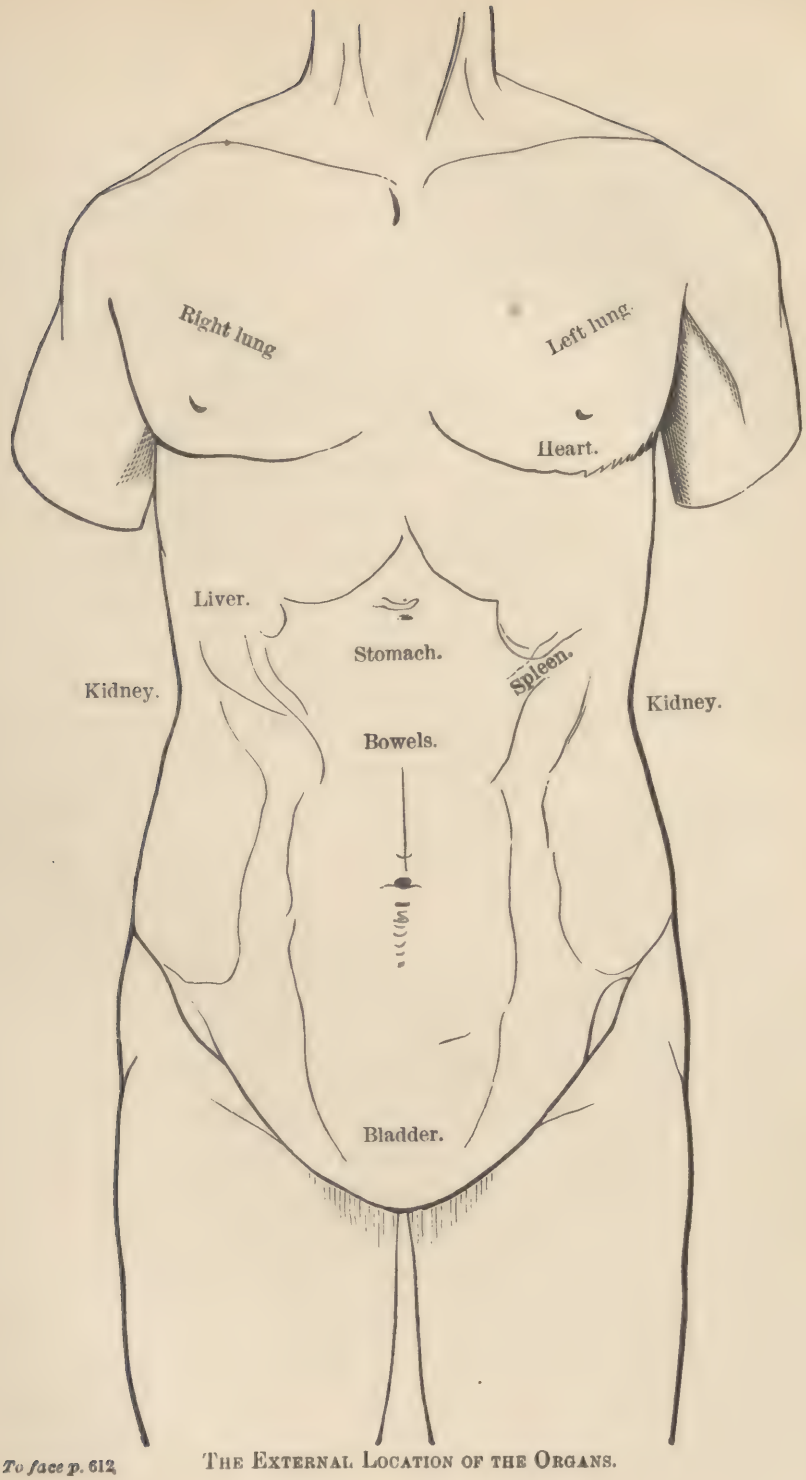
The attendant must be prepared to understand this and to know how much faith to place in such complaints, and what construction to give them.

EXTERNAL LOCATION OF PARTS.

Few of our readers would be benefited by a more detailed description of the internal arrangements of the body. But all will find it to their advantage to know where the principal organs are situated with reference to the surface of the body.

The lungs are in the upper portion of the chest, from the collar-bone downward. The right lung descends somewhat lower than the left, the latter leaving room for the heart. The latter organ is beneath the left nipple. Below it, close to the lower edge of the ribs, is the spleen. To its right, in the middle line of the body, and just below the breastbone, is the stomach. On the right side, beneath the lower edge of the ribs, is the liver.

The abdomen is filled chiefly with the bowels. At its lowest part, and directly in the middle line, is the bladder. The kidneys are somewhat high up in the back, just below the level of the liver, one on each side of the backbone.



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THE EXTERNAL LOCATION OF THE ORGANS.

PROPORTIONS OF THE HUMAN FIGURE.

The size and lengths of the different parts of the human body are not arbitrary nor irregular, as might be supposed from a careless examination. They are, on the contrary, rigidly conformed to laws.

Take a well-proportioned man, and you will find his total height is equal to the distance between the tips of his fingers when the arms are extended. Measure him through the chest from one armpit to the other, and five times this will equal his height. His head is one-eighth of his whole height; while his body and head together equal in length his legs.

These and many other minor measurements are well known to sculptors, modellers, and painters. They are found to hold good in the finest ancient statues. And the form is the more perfect, the more closely it approximates them.

HEIGHT OF THE BODY.

The body continues to grow to the age of twenty-five and sometimes thirty years. It remains stationary in height for about thirty years more. Then it decreases slightly, owing to flattening of the cartilages between the bones of the spinal column.

The average height of full-grown men differs in different nations. In Belgium it is sixty-six inches; in England, sixty-six and a half inches; in some parts of Germany, sixty-eight inches; in this country, sixty-eight inches, or very near that.

Full-grown women are in all these countries, on an average, four inches shorter than men.

WEIGHT OF THE BODY.

The average weight of grown men differs also in different countries. As a rule, it is in proportion to the height. For every one inch in height over five feet, we may expect an increase of five pounds in weight.

An excellent statement to remember in regard to the relation of weight to height is the following: As a rule, it may be laid down that an adult male, in good health, 66 inches in stature, ought to weigh rather more than 140 pounds avoirdupois. And for every inch above and below this height, we may respectively add and subtract about five pounds.

Individuals may be found who vary very greatly from the above stated proportions; but, as a rule, twenty per cent., or one-fifth, is almost the greatest variation within the limits of health.

The following table, showing the height, weight, and medium measure around the chest on the level of the nipples, will be of general interest:—

HEIGHT.	WEIGHT.	MEDIUM CHEST.
5 feet 1 inch,	should weigh 120 lbs.	34.06 inches.
5 " 2 inches,	" " 125 "	35.13 "
5 " 3 "	" " 130 "	35.70 "
5 " 4 "	" " 135 "	36.26 "
5 " 5 "	" " 140 "	38.83 "
5 " 6 "	" " 143 "	37.50 "
5 " 7 "	" " 145 "	38.16 "
5 " 8 "	" " 148 "	38.53 "
5 " 9 "	" " 155 "	39.10 "
5 "10 "	" " 160 "	39.66 "
5 "11 "	" " 165 "	40.23 "
6 "	" " 170 "	40.80 "

English writers, in making calculations about the working capacity of a man, take as his weight 150 pounds. This is their "one man power." It is somewhat too high. About 144 pounds avoirdupois would be more correct. This, to a height of 5 feet 6½ inches, represents the average Englishman. The races are so mixed in this country that it is difficult to say how far the pure Anglo-American varies from this, but the difference is little. Probably, for his height, he weighs a little less. The dryness of the air is not favorable to corpulence in our country. Women average about twenty pounds less than men.

RELATIONS OF HEIGHT AND WEIGHT TO HEALTH.

Tall men are not usually strong men. Their bones are not so strong, nor are their muscles so round and firm, as those of medium height, or the decidedly short.

Vital forces are stronger in short than in tall men.

The circulation of the blood is easier, and diseases of the heart and lungs less common. The vital force is also sooner exhausted in tall men. They have less endurance than short ones. Hunger, fatigue, and sickness break them down sooner. Their prospect of life is more unfavorable.

Most tall persons have narrow chests. Broad-chested people are usually short. Very long-lived and powerful people generally have short legs, long bodies, and short necks. President John Quincy Adams was such a figure, and he lived beyond eighty, and was very muscular. He could stand between two barrels of molasses, and, placing his fingers of one hand under the rim of each, lift both into an upright position at once.

Baron Alexander von Humboldt was also such a figure. He lived to be ninety-two, and made some of the most difficult and perilous mountain ascents on record.

THE EXPECTATION OF LIFE.

We have mentioned (see p. 42) the normal duration of human life, the length of time man ought and may live. Statisticians have found out pretty closely the actual average duration of life; not only so, but the average duration of life from each year of a man's age. The time which men, on the average, live after they have reached any given age, is called "the expectation of life," at that age. It is upon this "expectation" that life insurance companies figure. We give

below the table of average duration of life commonly used by them, known as the "Carlisle Table":—

AGE.	EXPECTATION.	AGE.	EXPECTATION.	AGE.	EXPECTATION.	AGE.	EXPECTATION.
0	38.72	18	42.87	35	31.00	52	19.68
1	44.68	19	42.17	36	30.32	53	18.97
2	47.55	20	41.46	37	29.64	54	18.28
3	49.82	21	40.75	38	28.96	55	17.58
4	50.76	22	40.04	39	28.28	56	16.89
5	51.25	23	39.31	40	27.61	57	16.21
6	51.17	24	38.59	41	26.97	58	15.55
7	50.80	25	37.86	42	26.34	59	14.92
8	50.24	26	37.14	43	25.71	60	14.34
9	49.57	27	36.41	44	25.09	61	13.82
10	48.82	28	35.69	45	24.46	62	13.31
11	48.04	29	35.00	46	23.82	63	12.81
12	47.27	30	34.34	47	23.17	64	12.30
13	46.51	31	33.68	48	22.50	65	11.79
14	45.75	32	33.03	49	21.81	66	11.27
15	45.00	33	32.36	50	21.11	67	10.75
16	44.27	34	31.68	51	20.39	68	10.23
17	43.57						

Other tables vary this expectation from one to two per cent.

CHAPTER II.

DISEASES, AND HOW TO DISTINGUISH THEM.

CONTENTS.

Incurable diseases—Diseases that cannot be recognized—How to distinguish diseases—How to examine an invalid—The pulse—The tongue—The mind and special senses—The organs of breathing—The heart—Organs of digestion—The appetite—Vomiting—Thirst—Action of the bowels—The kidneys and bladder—The skin—Behavior in the sick-room—The distribution of disease; In New England; The Atlantic States; The Central States; The Pacific States.

FEW persons have any idea of the vast number of maladies which may attack our bodies, and either destroy them, or incapacitate us for a longer or shorter time. Recently, the College of Physicians of London published a list of all the diseases known —a Nomenclature of Diseases, as it is called—and the formidable catalogue alone covers 327 pages of larger size than this! The number, to estimate them roughly, certainly extends beyond 1200.

What a labor must it be to study and recognize each of these, and to be ready with the appropriate remedy in every case! We venture to say that even the most learned physician is not equal to such an undertaking. How vain would be the attempt, therefore, to give sufficient information in a work like this, and to those

unacquainted with the many allied sciences, to enable them to treat every malady successfully!

Fortunately, this necessity is not thrust upon us. We can at once leave out of account all those complaints which are never or very rarely seen in this country; we can omit all those which are extremely difficult of recognition; and we can confine ourselves to those which are met with frequently, and which, though only a score or so in number, embrace nine-tenths of the cases of sickness that one is called upon to take charge of.

INCURABLE DISEASES.

Some, but happily very few, diseases are almost incurable. The best we can do is to alleviate the sufferings of the invalid, to protract life a few weeks or months, and to soothe the passage to the grave. To *cure* them is as yet beyond the reach of art. They occasionally get well, but rather by a spontaneous effort of nature, seconded by favorable surroundings, than by any medicines we can give them.

Cancer, consumption, insanity, and hydrophobia are examples. A small percentage of all of these recover apparently without any special treatment; so that there is hope in every case. What can be done for them is mainly through good nursing, concerning which we have spoken at length in the previous part of our work. In the present portion we intend to speak only of such diseases as *can be cured*, and in the

treatment of which, therefore, we feel that we have strong and effective weapons to combat the foes we meet.

DISEASES THAT CANNOT BE RECOGNIZED.

We may cut off of our list another class of diseases, that is, those which cannot be recognized and distinguished by persons who are unacquainted with physiology, anatomy, and the various methods of detection used by trained physicians. It is out of the question to presume that any large number of our readers have made these studies, and it were useless, therefore, to waste their time by detailing symptoms which they could not detect. Modern medicine has called to its aid, in this field, some of the most ingenious devices of mechanical science, and has perfected instruments of such delicacy, and so difficult to use, that months and years of training are essential to educate the hand and the eye and the ear to employ them successfully.

Such instruments are of the utmost value to the skilled physician, but in the hands of any other person are useless lumber, and it would be entirely out of place to describe them here.

Our purpose is to speak only of such diseases as are comparatively frequent in the United States, such as can be treated with a fair hope of success, and such as, with due regard to our descriptions, can be readily distinguished by readers who are not physicians, and have no acquaintance with the sciences of anatomy, physiology, and chemistry. By so doing, we believe we can place in the hands of those who, for any cause,

are thrown upon their own resources, the means of preserving the health and lives of their neighbors and themselves.

HOW TO DISTINGUISH DISEASES.

Every person who would undertake the cure of diseases must first qualify himself to recognize, after a short examination of an invalid, what the complaint is that in any given instance requires his care. To do this successfully in all cases is by far the most difficult portion of the physician's art, and even the most careful and the most skilful do now and then fall into errors of a grave kind. But in the majority of diseases, especially those which prevail most largely in this country, there is no special difficulty.

Indeed, we are prepared to maintain that any intelligent person with ordinary powers of observation, even though he or she has no knowledge of the niceties of anatomy and physiology, can, after a little practice, recognize very certainly what a common disease is. What is needed is to know precisely the points which demand attention, and which serve to distinguish one malady from another. These are neither very numerous nor very difficult to remember. We shall detail them with brevity and with perspicuity.

One can learn very much of a disease without asking the invalid a question, simply by looking at him carefully. It is to be borne in mind that certain ages are more liable than others to certain complaints. Consider, therefore, the *age* of the patient, and also the *sex*. Lay your hand on the face and feel if it is colder

or warmer than natural. Observe whether the cheeks and lips are flushed and burning as in fever, or pale and cold as in a chill. Vomiting, coughing, and the mental condition are visible at once. The position in which a sick person sits or lies is often indicative of an attempt to avoid pain. These and similar hints, which will readily suggest themselves, will often go far to show the character of the complaint before the invalid is asked a question. They must all be borne in mind. But there is great danger of a too hasty conclusion, so that before a decided opinion is formed a regular examination should be instituted. We will explain how to do this.

HOW TO EXAMINE AN INVALID.

Diseases are divided into groups, not many in number, depending upon the part of the body which they attack. Hereafter we shall go more minutely into the characters of each disease. Now we shall only indicate how the examination is to progress, in order to decide as to which group any given disease belongs.

When seeing a patient for the first time, if he is able to speak, do *not* commence your inquiries by the foolish question, What is the matter with you? which of course he is not likely to know, but ask, What do you complain of? or, Where do you feel pain? Next inquire how long he has been ill, and whether he has had such attacks before.

The replies to these queries will probably put you

upon the track at once, as to the locality and general nature of the disease. But they must be followed up with an examination of the general condition and symptoms of the patient.

THE PULSE.

The traditional plan is to commence by *feeling the pulse*, and it is well to observe this time-honored usage. It is usual to feel it on the artery just above the wrist, on the same side as the thumb. A very little practice will enable any one to find it without difficulty. It should be felt by pressing gently upon it with the tips of the fore and middle fingers of the hand. Its beats are thus rendered very distinct. In health the pulse beats about 70 or 75 times a minute. If much slower or much faster than this, it may be taken for granted that the cause is disease. In fevers it increases to 100, 120, and even 150 beats in a minute. When much slower than natural, some disease of the heart or the brain is apt to be present. When it is much more distinct than usual, and feels hard and bounding under the finger, it indicates violent fever. When several times during a minute a beat is lost, it is to be attributed either to disease of the heart or serious general prostration.

THE TONGUE.

The next step which is customarily taken is to *look at the tongue*. There is very much to be learned by

this, but we think it needless to give more than general hints here. The reason why we attach so much importance to the appearance of this member is, that it indicates very closely the condition of the stomach and bowels, and in general of the lining membranes of the interior passages of the body. In slight fevers and moderate disturbances of the system, it will be observed to be covered with a light whitish or yellowish furry coating. In more severe fevers the fur becomes brown, dry, and cracked. When the tongue is large, "flabby," and moist, and especially if it is pale, it betokens a debilitated system, and a lack of rich blood. If it is bright red, looking almost like raw meat, it indicates an inflammatory condition of the stomach. It is important for every one who would form any opinion of the appearance of the tongue in sickness, to become familiar with it as it is in health, and, therefore, he should examine his own and others' as opportunity offers.

When this general inspection is over, it is time to proceed to ascertain the condition of the various portions of the body. The simplest plan to adopt is to commence at the head and go down.

THE MIND AND SPECIAL SENSES.

The head, every one knows, contains the brain, which is the seat of our senses, intellectual faculties, and nervous powers. Each of these should now be investigated.

The *mind*, or intellectual faculties, are usually

obscured and dull at the outset of any violent disease. The patient answers questions with effort, and often incorrectly. Later, this may pass into delirium, marked by incoherent talk and false imaginings. The spirits are generally depressed in all diseases, but especially in those of the stomach, liver, and heart. Extreme nervousness is a frequent and painful associate of sickness. The irritability of temper which accompanies it must be looked upon as a pure symptom of the illness. The amount of *sleep* taken should be carefully ascertained. In the onset of many acute diseases, the invalid sleeps much more than usual; while later, and in chronic complaints, that is, those of long standing, more frequently sleeplessness is a prominent and unpleasant symptom.

The *special senses* are five, viz., sight, hearing, taste, smell, and feeling. In diseases of the brain, and inflammation of the organ, the eye cannot bear a bright light. Dimness of sight often accompanies general exhaustion. When a sick person does not blink before a bright light suddenly brought before the face, it is ominous of a dangerous condition of the brain.

The *hearing* at the commencement of fevers is often dull. There is a ringing sound in the ears, and a throbbing sensation. In diseases marked by much nervousness there is great sensitiveness to noise, so that even the slightest is almost unbearable. In proportion as this diminishes, we may regard our patient as improving.

The *taste* is nearly always amiss in illness. When

persons are "bilious," they will generally be found to complain of a bitter, coppery, or metallic taste. At other times the sense is almost or wholly lost.

The power of *smelling* is also much diminished in sickness, and some fancied disagreeable odor is often mentioned.

Having thus possessed ourselves of the condition of the sick person in mind and senses, we next should direct our attention to

THE ORGANS OF BREATHING.

The *odor* of the breath should be noted first. When very foul, it certainly indicates disease. When the odor is a sickly sweetish, we may conclude the lungs are out of order; when putrid on approaching it, the cause may be decayed teeth or dyspepsia, or the decay of the blood which takes place in any wasting disease.

Next to the odor, the *frequency* of the breathing should be marked. In health and repose, we breathe seventeen or eighteen times a minute; in a fever the respiration runs up to twenty or twenty-five times; and in inflammation of the lungs often to thirty, forty, and even faster in the same space of time. It is best to count the respirations without letting the invalid be aware of it, as very many exercise some constraint, although involuntarily, upon their breathing, if informed that it is being counted.

The *voice* should be noted carefully. When unusually feeble, it indicates prostration; when hoarse or croupy, inflammation about the organs of speech. It

is totally lost sometimes in the early stages of consumption, and in some other and less serious diseases.

Soreness or pain, increased on taking a long breath, points very strongly to some local affection in this part of the body.

But the commonest of all symptoms of diseases of these organs is a *cough*, and it demands therefore careful inquiry. Its frequency should be ascertained, its violence, whether it is accompanied by expectoration or is dry, and what seems most quickly to excite it. A "winter cough," as it is called, is a pretty certain symptom of chronic bronchitis. A slight "hacking" cough of long standing often precedes consumption. Sometimes a very violent cough is produced by a tickling sensation in the throat. But it must be remembered that a cough may sometimes be obstinate and severe, yet not indicate any disease of the lungs, as it may arise from pressure caused by the liver or stomach, or from irritation at the upper part of the windpipe.

The *expectoration*, or what is coughed up, comes next in order. This is generally mucus which has been secreted by the lining membranes of the air-tubes in the lungs. Its color and consistency are highly instructive. In ordinary colds it is whitish or yellowish, and moderately tenacious; in inflammation of the lungs it is the color of iron-rust, and exceedingly "sticky," clinging to the sides of a vessel almost like glue; whenever these latter characteristics are perceived, it indicates mischief. The presence of blood is of serious moment. When it comes from the lungs,

it usually is bright red in color, and rises to the mouth almost pure. If only in streaks mixed with mucus, it may be from the throat. When dark-colored and partly clotted, it is probably from the nose, teeth, or stomach. The amount must be inquired, as well as whether it has any peculiar taste to the patient. Frequently a salt taste is spoken of, which indicates an excessive secretion of this substance from the blood, and is often associated with spitting of blood.

Having satisfied ourselves by these inquiries regarding the organs of respiration, we next pass to those located immediately adjacent to them, the organs of circulation, especially

THE HEART.

This is situated in the left half of the chest, nearly beneath the left nipple. If the hand is laid upon this portion of the body, the beats can be distinctly perceived and counted. They should be moderate in force and regular in sequence. Some persons suffer much from a sense of fluttering or palpitation at the heart, even to the extent of causing faintness. Others, without actual pain, complain of a sense of "goneness," which leaves them exhausted and almost breathless. Pain over the heart, though always requiring careful investigation, may arise from many quite insignificant causes, and should not excite needless alarm.

Most of the diseases to which this important organ and the large arteries near it are subject, can only be distinguished by a practised physician and the em-

ployment of complicated apparatus, so that we shall not enter into their description in this volume. Suffice it to say that the danger and fatality from disease of the heart are much exaggerated by the popular mind.

ORGANS OF DIGESTION.

To examine these properly, we must commence at the mouth, for there in one sense the process of digestion begins.

The *teeth* are a very important aid in this process, and it is surprising how many cases of dyspepsia and general ill-health arise from a neglect of using them and keeping them in good order. Often all medicines are useless until some foul and decayed teeth are removed, some old roots extracted, or a set of artificial teeth obtained.

The *gums* deserve close inspection. Sometimes a single glance at them reveals the hidden origin of a multitude of wretched sensations. In scurvy and some similar complaints they are red, spongy, swollen, and bleed almost on the slightest pressure. When the system is poisoned by lead, as may occur from working with lead paint, or from drinking water which has been conveyed in lead pipes, or from using hair color restorers or cosmetics containing this mineral, there is a faint blue line on the edge of the gums. In exhausting fevers, and when the invalid is much worn down, a brownish or whitish matter collects around the edges of the gums and teeth. Any of these appearances must be carefully noted.

The *saliva*, or spittle, is occasionally of much significance. When a person has taken mercury and some other drugs in excess, they cause an unusual flow of this fluid, which phenomenon is called "salivation." The taste and color are also sometimes altered.

Passing downward, we next examine the *throat*. To do this, have the invalid open his mouth, and taking a spoon, press the tongue gently, but firmly, down with the handle. A very little practice will enable any one, by this means, to obtain a very good view of the upper portion of the throat. It is best to obtain a good light by seating the patient in a chair facing a window, and, having his head thrown back, allow, by standing a little to one side, the light to fall upon the back part of the throat. We can then distinctly see the *uvula* and the *tonsils*. The uvula is a small, fleshy body, that hangs from the middle of the back portion of the roof of the mouth. Sometimes it is enlarged and lengthened, causing difficulty in swallowing, and a distressing cough, from tickling the throat. Below and beyond it, on either side of the throat, can be seen two bodies about the size and shape of almonds. These are the tonsils. They are often swollen, and sometimes ulcerate and give rise to much pain. They can be treated either by gargles, or by direct application of substances carried through the mouth on a camel's-hair brush with a long handle.

In some persons such an examination of the throat as we have described causes retching and even

vomiting, but this need not give alarm, as these unpleasant symptoms promptly pass away.

In this connection it should be ascertained whether there is any difficulty or pain in swallowing, and at what part of the throat this seems to be.

THE APPETITE.

Disorder of the health probably shows itself nowhere more promptly than in our desire for food and drink. Usually at the onset of all diseases the appetite is decreased or altogether lost. Sometimes an actual aversion for food occurs. At others, the desire is fitful and capricious. Children with worms, and young girls who have "green sickness," will at one meal eat large quantities, and at another almost nothing at all. Nearly all such patients crave some single or unusual article. One will want pickles, another sweets; some have a longing for chalk, others for slate-pencils. Such unnatural tastes should not be punished as wilful bad habits, but be regarded as evidence of a disease which requires judicious management and kind treatment.

A voracious appetite is common in tapeworm, in the convalescence from acute diseases, and in some cases of dyspepsia. Often it is supposed to be a favorable sign when in reality it is quite the reverse.

In health, "good digestion will follow on good appetite," but in most diseases more or less discomfort is felt in the stomach or bowels immediately or soon after eating. The character, locality, and frequency

of this should be ascertained. Often it is only a sense of weight or pressure, due to a lack of power in the stomach to digest the food which has been thrust into it. Sometimes it is nausea, which is a desire to vomit without actually leading to vomiting.

VOMITING.

When *vomiting* does occur, it should be carefully noted. Its cause should be asked, its frequency, and whether it is accompanied by much effort and any pain. The material vomited is instructive. When it consists merely of the food and drink which have been taken, we may justly suppose that the stomach has merely been overladen. Sometimes a greenish fluid, with a bitter taste and smell, is thrown up. This is "bile," and a person in this condition is popularly called "bilious." Once seen, this substance can always be recognized. It indicates torpidity of the liver and stomach. More serious is it when there is appearance of blood in the vomited matter. It is necessary to be sure that this did not come from the nose, from the teeth, or from some wound in the mouth. When from the stomach, it is very dark-colored, clotted, and mingled with food. Several causes may give rise to it, an ulcer on the stomach, a cancer, or the inflammation of the lining membrane of the organ which often follows long-continued and excessive use of alcoholic beverages.

THIRST.

The *thirst* felt by a patient is a marked symptom of nearly all fevers, and is not less notable in wounds. None but those who are familiar with the tales of terrible suffering which the wounded in a battle experience for want of water can adequately appreciate it. It is their first and most importunate demand. This is because they lose much blood, and failing in its vital fluid the body urgently demands some other to replace its waste. The cruel treatment of a bygone age was to deny to fever patients that which beyond all else they crave—cool water; but now a more enlightened practice recognizes in this urgent longing a call of nature which it is most wise to satisfy to its full extent.

Occasionally a dislike or horror of liquids, even extending to the sight or sound of them, is manifested. From this striking symptom the disease brought about by the bite of a mad dog is called "hydrophobia," which literally means "a dread of water." The same dread or dislike is at times one of the freaks of the insane, and we have witnessed these unfortunates actually die of thirst rather than be prevailed upon to touch any fluid!

Other points relating to the digestion are the frequency of eructation or belching, the tendency to taste food for hours after it has been swallowed, the rising of water in the mouth (water-brash), and the sense of heat in the pit of the stomach popularly called "heartburn." All these are symptoms of indi-

gestion, and there are a legion more which we need not rehearse here. Suffice it to say that it is in this connection they should be inquired into.

ACTION OF THE BOWELS.

The food we take enters at the mouth and passes to the stomach and bowels. In these organs that portion of it which is fitted to nourish the body is digested and taken up by the various machinery which nature has provided for the purpose, while the remainder, as not available, is rejected, and left to pass out at the extremity of the bowel. It is highly important, indeed indispensable to the general health, that this act should be performed regularly every day. Therefore in the examination of every sick person this inquiry must be put: Have your bowels moved to-day? When did they move last? How often in twenty-four hours (if there is a tendency to diarrhœa)? Not only this, but the color should be ascertained. When very light or clay-colored, it signifies want of action of the liver. If watery, there is diarrhœa; if blood is present in the stools, and there is pain in the act and a frequent desire to repeat it, it means dysentery or "bloody flux." When the stools are passed involuntarily, in adults, it is justly regarded as an alarming proof of other physical or mental prostration. The presence of worms in the bowels is often shown by their occasional appearance in the passages.

THE KIDNEYS AND BLADDER.

The fluids which are no longer needed in the body pass off by means of the lungs, the skin, and the kidneys. The latter secrete the urine, which is temporarily retained in the bladder. This secretion is of such importance that when it is suspended for a few hours fatal poisoning may ensue from the impure matter retained in the blood. Inquiry therefore should always be made as to the healthy action of these organs. The question is usually put in this form: When did you last pass water? Its frequency, whether it is painful or not, and the amount passed at a time are all instructive facts. The color of the water differs very much. In fevers usually the fluid is scanty and darker than in health. The odor also is more stale and offensive. When the amount is unusually great, and light in color, it may signify the presence of the disease known as diabetes, which is one of serious character. When the water is cloudy and turbid, or slightly tinged with blood, we may suspect some inflammation of the bladder.

The deposits which are formed after the water has stood some time are extremely important in revealing the character of any mischief which is going on, but they can only be appreciated by one acquainted with the use of the microscope and the application of chemical reagents, so we shall not discuss them here, further than to say that the sediment resembling brickdust, often seen attached to the bottom and sides of the vessel, is *not* of an alarming character.

This examination informs us with sufficient exactitude about the most important functions of the body. We now proceed to study the external surface, that is,

THE SKIN.

Its color is that which meets us at first. This should retain the delicate white and pink shades which it has in health. If pale and waxy looking, it indicates want of good blood; if yellow, we will justly suspect jaundice and disturbance of the liver; if of a light greenish hue, the invalid is most probably afflicted with the complaint known as "green-sickness" or chlorosis, of which in another work we have spoken at some length; and, finally, if very red, there may be scarlet fever or erysipelas present.

Placing our hand upon the patient in different parts of the skin, we judge of its *temperature* and *moisture*. It may be hot and dry as in high fevers, or cold and clammy as in fainting, chills, and collapse, and after severe accidents. Excessive sweating takes place in acute rheumatism, in the last stage of an ague chill, in the night-sweats which come from exhaustion, etc.

Every *eruption* which is visible on the surface should be examined with the greatest care and in a good light. Very many diseases can be distinguished at once by these, and in no other way. Besides the skin-diseases properly so called, there are many others, such as smallpox, chicken-pox, measles, scarlet fever, typhoid fever, and scurvy, each of which is accompanied by a particular eruption or mark on the skin

which when once known cannot be mistaken, and removes all doubt as to the nature of the complaint. When we come to treat of these various diseases we shall specify what these signs are.

At the same time we may look at the muscles, feel their firmness, notice whether the patient is emaciated, see if the joints act naturally, and note any want of power in the limbs, and any jerkings, twitchings, or cramps which they show.

This will finish the examination, which, it will be seen, can be made with perfect satisfaction by any intelligent person, even if he has no accurate knowledge of anatomy or physiology, and no other appliances than his five senses afford him. In the large majority of cases, he will find after some experience in the sick-room, that he can thus distinguish accurately and readily most of the prevalent diseases.

BEHAVIOR IN THE SICK-ROOM.

A few words should be added on the proper manners which every one should adopt who undertakes the examination of a sick person. It should ever be borne in mind that in illness nearly every one is irritable, easily exhausted, and desirous of sympathy. Always manifest—and strive to feel—a kindly spirit, spare all needless talk, never ask the same question twice, and do not insist on too minute inquiries. Great delicacy should characterize questions relating to the bodily functions, and a cheering, inspiriting tone should be used, equally far from gayety and gloom. Call atten-

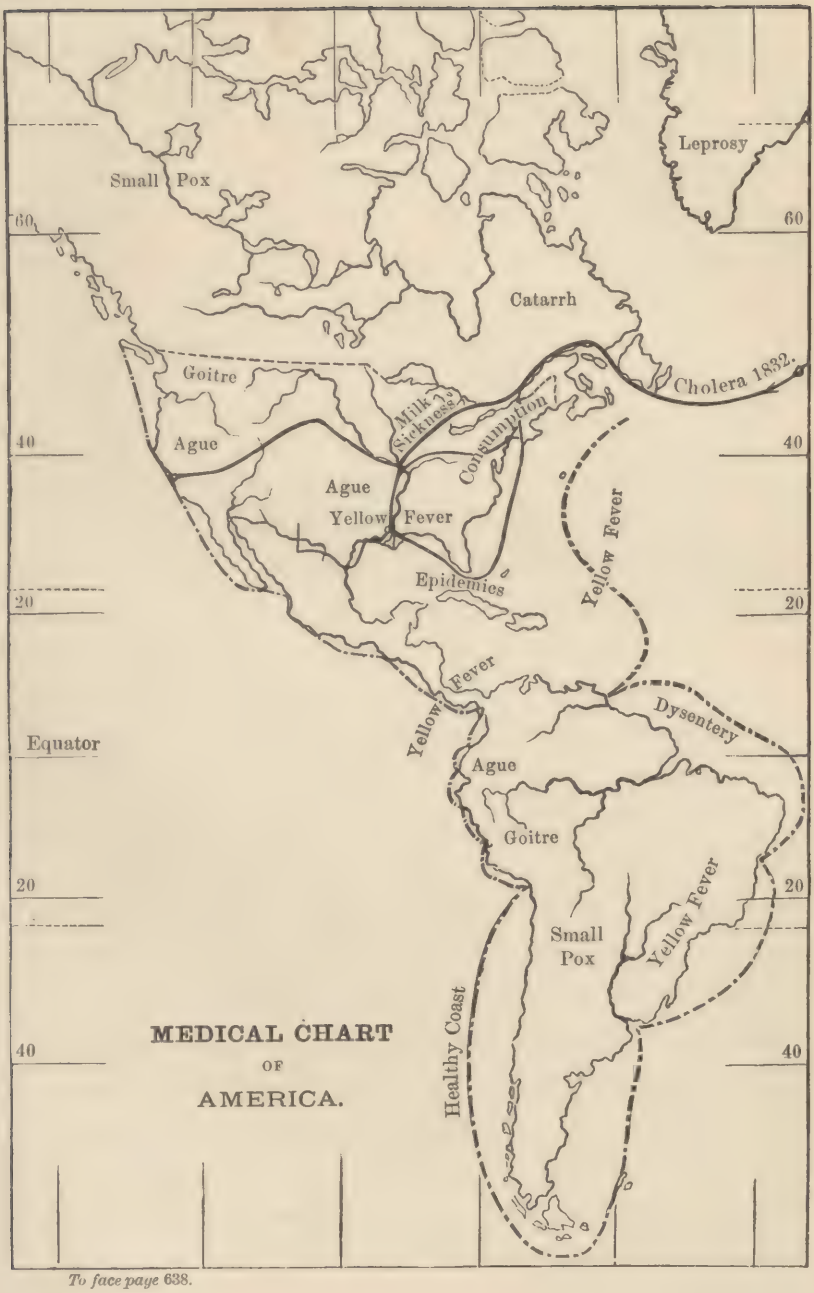
tion to the signs that are favorable, keep silence about those which are not. If there is cause for serious alarm, tell the friends and relatives of the invalid, and let them take the responsibility of informing him, or refusing to do so. Do not whisper to the attendants, but always speak aloud, though in a low tone of voice. Avoid all appearance of mystery, and also all manifestations of doubt and uncertainty.

THE DISTRIBUTION OF DISEASE.

The emigrant, the traveller, the buyer of land, in fact nearly every one, is interested in knowing something about the distribution of diseases in this country, that is, where certain diseases prevail and may be anticipated, and where they rarely or never occur.

NEW ENGLAND.

In New England the most frequent and fatal diseases are those which attack the throat and lungs, especially catarrh, bronchitis, and consumption. The latter alone destroys about one-fifth of the inhabitants of that district. A physician near the sea-coast of Maine lately stated that in his practice fully *one-third* of the deaths among his female patients were from this cause. On the other hand, fever and ague is comparatively little known, even in swampy localities. Medical men are of opinion that the violence of the swamp poison disappears as we advance north; and that above the latitude of 44° it disappears altogether.



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This is the reason that in the swamps of Nova Scotia, and around Hudson Bay, it is entirely unknown.

Typhoid fever prevails extensively in New England, especially in the winter season, owing to the poisonous exhalations from individuals being confined in close rooms, etc.

THE ATLANTIC STATES

The States bordering on the Atlantic south of New England are subject to a damp and variable climate (except Florida). Their inhabitants are afflicted with diseases of the air-passages, though not to such a degree as in New England, but intermittent fever, and other disorders arising from the exhalations of low grounds, increase in frequency as we proceed south from New York city. The swamps of New Jersey, Virginia, South Carolina, and Georgia are especially notorious for their unhealthy atmosphere. In the last-named States, few persons escape the malarial influence who reside near the watercourses.

The yellow fever often prevails in summer in Charleston and Savannah. A temperature lower than about 65° Fah. neutralizes the poison of this epidemic, so that but rarely, and only in the hottest months, could it prevail in New York, Philadelphia, or Washington.

Consumption decreases in virulence as a warmer climate is approached. On the uplands of South Carolina, and the mild eastern shore of Florida, its

progress is much delayed, and, for that reason, those localities are favorite health resorts in that complaint.

THE CENTRAL STATES.

The vast sloping plain of the Mississippi Valley displays a great variety of climate between the metalliferous and pine-clad shores of Lake Superior and where the tepid waves of the Mexican Gulf beat the low shores of Louisiana. Throughout nearly this whole region, however, we find the subtle poison from the numerous swamps producing fever-and-ague and its many allied diseases, such as the "dengue" in Louisiana, the "break-bone fever" of Arkansas, the "dumb shakes" of the Wabash Valley, and the periodical neuralgias so frequent further north.

In Louisiana the yellow fever is nearly an annual visitor; while, in many districts of Indiana and Illinois, that mysterious complaint, the "Milk-sickness," gives certain neighborhoods a fatal notoriety.

Epidemics of dysentery are also frequent in the middle and southern States of this section, and in the cholera epidemics which we have from time to time experienced the severest sufferers have been some of the cities on the Mississippi River.

The atmosphere is, however, drier than on the Atlantic coast, and, hence, is better adapted for those with a tendency to bronchitis or consumption. They very frequently experience much relief from their symptoms by a removal from the sea-coast to the interior.

THE PACIFIC STATES.

The States and territories which border upon the Pacific enjoy a milder temperature than localities in the same latitude on the Atlantic, and it was at first thought and said that their healthfulness was much greater. Further experience has not borne out this opinion. Consumption and fever-and-ague seem to prevail quite as extensively, and to be quite as severe in character, along the Pacific as along the Atlantic coast. San Francisco is not in these respects a healthful spot. The lofty plateau between the Cascade, Sierra Nevada, and Rocky Mountain ranges is almost exempt from consumptive disease, much more so than any other section of our country, but this exemption does not extend to localities on the Pacific slope.

Smallpox rages extensively among the Indian tribes of the extreme western States, and goitre develops itself among the inhabitants of the deep valleys in the mountains.

CHAPTER III.

HYGIENIC MEANS OF CURE.

CONTENTS.

Ancient methods of cure—The natural means of cure—Mineral springs—Iron or chalybeate springs—Sulphur springs—Alkaline and carbonated waters—Salt springs—Miscellaneous springs—Advice to those using mineral waters—Change of climate—What kind of a climate to choose—The climates of the United States—The most healthful warm climate—General directions in changing climates—The Swedish movement cure—Movements for cold hands and feet; for constipation; dyspepsia—The lifting cure—Electricity; how to apply it; diseases benefited by it; loss of voice; special senses; palsy; rheumatism; poisoning, etc.

THE end and aim of all medical art, strictly so called, are to *cure the sick*. This is its starting-point and its goal. To prevent disease is perhaps a higher aim, and can to some extent be accomplished. But sooner or later the inexorable Fates overtake every son of man, and he is stretched upon a bed of sickness. His one sole desire is *to be healed*, and for this alone the doctor is summoned. If at this juncture his art fails him, both he and it fall into disfavor.

ANCIENT METHODS OF CURE.

In ancient times, and in barbarous nations, when diseases were looked upon as the attacks of evil spirits

or the spells of some malignant sorcerer, the attendant called in to heal sought to scare away the demon by beating drums, howling aloud, rattling empty vessels, and making similar hideous noises. There are superstitions as gross as this now publicly prevailing in this country, as, for instance, the usages of the so-called "magnetic doctors," those who cure by the "laying on of hands," the clairvoyant and spiritualist medicines. This is all unreasonable and degrading folly.

There is a beautiful theory that beneficent Nature has provided somewhere in her realm the substance which is the specific cure for each of those ills to which we are heirs. This notion, however attractive, finds little countenance in exact science, but it is true to the extent that a benign Providence has everywhere and abundantly placed within our reach many means which we can successfully apply to relieve suffering, to restore health, and postpone the inevitable termination of earthly life. Experiment, thought, and intelligent observation must teach us how to use these means wisely, and which to recommend in any given case. To bring them lucidly, in some simple yet correct arrangement, to the knowledge of our readers, we shall briefly review them under the headings, Natural Means, Mechanical Means, and Drugs.

To commence with

THE NATURAL MEANS OF CURE.

The first and most important in many respects are *mineral waters.* Indeed, every year extends more and

more the opinion among medical men that in the future, when the full virtues and proper application of these medicinal waters are fully appreciated, they will come to be regarded as by far the most important of all the resources at our command to attack disease.

There is an astonishing amount of ignorance in this country concerning their real effects and merits, which is shared even by physicians. We design to dwell particularly upon the mineral springs of the United States, to describe where they are, what they contain, and what diseases they benefit, so that those who read this work, when they conclude to go to some Springs to regain health, shall do so more intelligently and consequently more successfully than the vast body of the present visitors. Moreover, we shall give some hints regarding their conduct while at a watering-place, which, if observed, will tend materially to their subsequent comfort.

Every one knows that a mineral spring is one whose waters contain in solution various substances not found in ordinary pure water. They are divided according to these substances into four classes. The first is the chalybeate or iron springs, in which iron in some form gives a marked taste and effect to the water; secondly, there are the sulphur springs, readily recognized by their odor, their milky color, and their sulphurous taste; the third class includes the alkaline springs, which contain as their chief mineral ingredients carbonate of soda, carbonate of lime, and allied substances; and, finally, the salt springs, in which common salt forms a large portion of the solid con-

stituents. These classes differ very much in their medicinal virtues and in their value in diseases. Those who will derive benefit and perhaps regain perfect health by making use of the waters of one class, will be certainly, and perchance permanently, injured, if they ignorantly patronize another. The selection of the proper water is just as important as of the proper drug from the apothecary's shelves.

IRON OR CHALYBEATE WATERS.

These waters are usually cold, clear, without any odor, and of an inky taste, more or less masked by other ingredients. When of an average strength they contain about a grain of metallic iron to the pint of water. Now iron is one of the very best tonics known to medicine; it is an important element in the blood, and its consumption, therefore, in an exceedingly minute division, to the extent of several grains daily, has an excellent effect when there is a lack of good blood, general debility, nervous prostration from overwork or anxiety, in scrofulous and consumptive constitutions, in convalescence from acute diseases, and in tendency to bleeding from slight causes. On the contrary, chalybeate waters are likely to prove injurious to corpulent persons, with florid faces and sanguine temperament, to those threatened with apoplexy, in inflammatory disorders of the stomach, bowels, or other internal organs, and in fevers.

One of the strongest chalybeate springs in the United States is at Schooley's Mountain, New Jersey,

Its waters contain two grains of carbonate of iron to the wine pint according to the published analysis. It is "hard water," that is, containing carbonate of lime in considerable abundance, eight grains to the pint. It is cool, the temperature, winter and summer, remaining at 50° Fahrenheit.

Iron springs are very numerous throughout our country, especially in the more mountainous portions, and many of them enjoy considerable local renown for their medicinal powers. In many of them the iron is associated with other ingredients, which add to its value in certain diseases. This is the case, for instance, with Anderson's Spring, at Bedford, Pennsylvania. A quart of its waters contains one and a quarter grains of the carbonate of lime and not less than twenty grains of the sulphate of magnesia (Epsom salts), which act as an efficient laxative. This renders its waters peculiarly suitable for persons with chronic liver-complaint, with piles, biliousness, obstinate depression of spirits, constipation, "ague-cake" or enlarged spleen, and generally where with a tonic we would associate something to act regularly and gently on the bowels.

The "magnetic wells" of St. Louis, Michigan, have become somewhat prominent of late. Their water has the curious property of communicating polarity to a needle which is left for some time in it. This depends upon the presence in solution of a small quantity of the magnetic oxide of iron, the same which is familiar to all in the loadstone. These wells

have no peculiar virtues beyond other chalybeate springs.

At Sharon, New York, there is a chalybeate spring of similar properties to that already mentioned at Bedford, Pennsylvania; and the Sweet Springs, in Virginia, which contain a grain of iron to the quart, and have a temperature of 73°, are others of the same character.

In the Rockbridge Alum Springs, and the Church Hill Alum Springs of Virginia, the iron is present in the form of the sulphate of iron or green vitriol, and is conjoined with alum. These are very rarely advantageous internally, being extremely difficult of digestion; but as baths, washes, and injections, they are of great service in profuse secretions, in piles, in old and obstinate ulcers, and some skin affections.

SULPHUR SPRINGS.

These waters are readily distinguished by their color, usually slightly milky, their odor approaching feebly that of spoiled eggs, and their very decided sulphurous taste. Some are cold, others warm, and their water is used both internally and for baths. Their general action is to stimulate the secretions, especially of the skin, and they are in many cases remarkably efficacious.

The principal diseases in which they are of service are disorders of the liver, including biliousness and piles, obstinate coughs which arise from the bronchial membrane of the lungs and throat, hoarseness, "clergy-

man's sore throat," and loss of the voice, gout, and chronic rheumatism, slow poisoning from lead or arsenic, and especially in diseases of the skin. When these latter are supposed to arise from some secret infection, a course of sulphur waters will very certainly decide the question, and probably bring about a cure.

These springs are numerous in the United States, and many of them are fitted up for the comfortable accommodation of numerous guests. In New York there are the Avon and Sharon Springs, at both of which the waters are cold, ranging about 50° Fahr. At Sharon, the White Sulphur Spring is much stronger, both in the sulphates and the sulphuretted hydrogen gas, than the magnesia spring, though the latter contains both these substances. Both of them act as efficient laxatives, and thus assist the medicinal action of the sulphur.

Virginia is particularly rich in sulphur springs; the White Sulphur is a justly celebrated and very fashionable watering-place. The waters are not so strongly saturated either with sulphur or the sulphates as the Sharon Spring, and their temperature is fifteen degrees higher. The constituents of the Red Sulphur Spring are more evenly balanced than those of the White, and it contains very nearly double as much sulphuretted hydrogen. It is admirably adapted for affections of the throat, and the early threatening symptoms of consumption.

The Salt Sulphur is another of the Virginia springs, which has a wide reputation. Its waters are laxative,

and contain a large number of mineral ingredients, among which is common salt, the taste of which is quite perceptible, and from which the name of the spring was given. The Blue Sulphur and the Warm Springs, the temperature of the latter being 98°, are also well-known sources in the same State. The former is so-called from a bluish tinge derived from a small quantity of sulphate of iron which it contains. It also has iodine in solution, and it is especially recommended in scrofulous swellings, and enlargements of the glands of the neck and elsewhere.

The Indian Springs in Georgia, Bladon Springs in Alabama, those at Lauderdale in Mississippi, and the Hot Sulphur Springs of Arkansas, are other and efficient sulphur waters.

Florida, which offers so many attractions to the health-seeker, is also peculiarly rich in mineral springs of various descriptions. Of its sulphur springs we may mention the White Spring in Hamilton County, the Orange Spring in Marion County, the Sulphur Spring at Enterprise on the St. John River, and the Warm Spring in Sumter County. At all of these there are accommodations for invalids, and those seeking a warm winter climate in this State will do well to take advantage of the opportunity, and combine with the change of climate a judicious course of mineral waters.

ALKALINE AND CARBONATED WATERS.

These waters are so called on account of the large amount of carbonic acid they contain, either in the

form of gas, or, more frequently, as the carbonates of lime, magnesia, and soda. Some of them are cold, others warm. Their water is clear, often sparkling, and usually with a decided taste.

The peculiar value of these waters is in obstinate indigestion, sourness of the stomach (heartburn, water-brash), and dyspepsia, where there is a tendency to the formation of gall-stones and stone in the bladder, in gravel, gout, nervous disorders, and chronic catarrh. On the other hand, they will be apt to be injurious where the blood is thin and poor, where there is any hectic fever, any signs of scurvy, and general debility. Under any circumstances, they should be used cautiously, and not for any great length of time, as in such case they dilute and impoverish the blood. The famous Seltzer Springs in Germany, those of Vichy in France, and the Seltzer Spring at Saratoga, are well-known instances of carbonated waters.

The Lebanon Springs in New York and the Sweet Springs of Virginia are somewhat similar in constituents. The temperature of both these sources is about 72° Fahr.

Some of the carbonated waters are acid and others are alkaline, but they are all employed with benefit in the same diseases—chiefly those of the stomach, kidneys, and bladder.

SALT SPRINGS.

In these springs the predominant element is common salt, though it is generally associated with

numerous other substances. Their medicinal powers are exerted chiefly in all diseases of a scrofulous nature, in rheumatism and gout of chronic character, in obstinate diseases of the skin, and in diarrhœa of long standing. They furnish both cold and warm water, clear, and with a marked salty flavor.

Brine springs are very numerous throughout the United States. They form the "Salt licks" and "Bone licks" of Kentucky and Tennessee. In New York and Michigan large quantities of table salt are obtained from them by concentration and evaporation. The famous Ballston Spa and Saratoga Springs (Congress, Union, Pavilion) belong to this class.

Salt lakes are found in Florida (near the head waters of the St. John River, on its right bank), in Utah, and in other portions of our country. Bathing daily in their waters for several months consecutively is unquestionably the most efficient means to cure scrofula known to medical art.

The ocean is a vast salt lake, possessing medicinal properties equal to any saline spring, and the hygienic uses of sea-bathing deserve prominent position among natural means of cure.

MISCELLANEOUS SPRINGS.

Various springs, not properly coming under these classes, have from time to time been highly extolled for the virtues they are averred to possess in certain diseases. A year or two ago, a company in New York advertised extensively a spring which they alleged

contained small quantities of arsenic in solution, and had the power of healing cancers! Of course, putting their assertions to the test of experiment very soon proved that the cure for that terrible disease was no more possessed by them than by any other of the thousand pretenders who claim it.

The proprietors of the Gettysburg Spring, Pennsylvania, state that its water has a considerable quantity of the substance lithia, which has enjoyed a wide reputation for its power over rheumatic and gouty diseases of long standing. Its effects on dyspepsia and indigestion have also been highly lauded.

In this country, too, interested parties have striven frequently to give reputation to a mineral spring, not from its real merit, but merely to sell its waters or to draw visitors to it. To such an extent has this been pushed, and so bold and all-embracing are the claims of these very partial witnesses, that a widespread suspicion stands ready to meet all such attempts in future. It is our advice to distrust all circulars and analyses of hotel-keepers and proprietors, and to take the opinion of a competent and unprejudiced physician as to what spring suits any individual case.

We now proceed to give some general

ADVICE TO THOSE USING MINERAL WATERS.

No water whatever will cure or even benefit the invalid, unless he submits himself, his habits, and his diet rigorously to certain rules. We can only lay

these down for him in a general way, and leave to his medical adviser the task of detailing them more minutely.

A regular course of mineral waters is *only* of service in chronic diseases, and then only when they have not gone too far. When it is determined to undergo this treatment, it should preferably be done at the springs. To be sure, the water of most of the famous sources is bottled and can be had in the drug-stores, but not only is it generally fresher and purer at the fount itself, but the journey thither brings with it change of air and diet, relaxation, rest, and amusement. The warm months of the year are at once the most pleasant and the most judicious period to commence. Should it, however, be begun in the cold months, smaller quantities of the water should be used, and unusual precautions be taken about exposure.

The *amount to be taken* is a matter of far more importance than persons generally suppose. The custom with many is to let appetite or passing inclination govern this. On the contrary, it should be strictly regulated. Commence with a small quantity taken at regular hours. The usual time is in the morning, before breakfast, letting at least half an hour elapse between the drink and this meal. Smaller doses may be taken about the middle of the morning and toward the close of the afternoon, and in the evening either only a quite limited quantity or none at all should be taken.

A careful diet is absolutely essential to success. The breakfast should be light, the dinner abundant but

not rich, the supper scanty. The meals should be taken at regular hours, highly-seasoned dishes of all kinds avoided, coffee, tea, and tobacco either eschewed altogether, or indulged in with great moderation, and spirituous liquors wholly banished.

Gentle and daily exercise should be sought, but over-exertion, late hours, and loss of sleep must be shunned. The frequency of dances, "hops," and excitements of various kinds at our fashionable watering-places, is out of place and injurious to the health-seeker, however agreeable to the pleasure-seeker. Above all, the invalid should leave all home-cares at home, dispel anxiety respecting the future and grief concerning the past, and cultivate serenity of temper, a hopeful spirit, and a determination to improve. So doing, he will double and treble his chances for recovery, and render a powerful aid to the curative means he is engaged in testing.

CHANGE OF CLIMATE.

This is among the natural means of cure not less important, and sometimes more so, than the ready-made potions we have just been discussing. The remark is made by an eminent London physician: "It would be difficult to point out any chronic complaint, or even any disordered state of health, which is not benefited by a timely and judicious change of climate." We shall specify in what complaints an improvement by this means may be most confidently looked for, and

shall then proceed to discuss the medicinal merits which the various climates of our own country possess.

Probably in no disease are these benefits more conspicuously exhibited than in that one where all other means notoriously and nigh uniformly fail—that is, consumption. All of us must have known repeated instances of persons who, in the opinions of their friends and their physicians, seemed inevitably destined for an early grave, and who by a long visit to some warmer or drier climate have restored themselves to perfect vigor and activity.

A complaint sometimes mistaken for consumption —chronic bronchitis—but which more frequently occurs in elderly persons, is curable also by removal to a mild and equable climate, while it is generally refractory to all other medication.

Scrofula, a taint in the blood of distressing prevalence, especially among our city population, is often eradicated from the system by a total change of air, diet, and surroundings. The same is true in chronic rheumatism, dyspepsia, and nervous exhaustion.

There is a period in advanced life when, though no actual disease is present, yet the bodily powers visibly give way to the advances of age. The mind, too, sympathizes and loses to some degree the keenness of the faculties. With most this is about the age of sixty. It has often been noticed how many men, inattentive to the signs of their failing powers and continuing to demand as much work of their weakened frames, suddenly die at this age. The part of prudence would be for them to take a complete and

prolonged rest, and to seek some mild and equable climate for a winter or two. This change, taken in time, will often add ten years to life.

WHAT KIND OF CLIMATE TO CHOOSE?

This is a far more important and difficult question than is generally conceived. Not every person nor even every case of the same disease is benefited by the same climate. Unfortunately the invalid is apt to go where it is most convenient or most agreeable for him to go. Consequently he often fails in obtaining the improvement he expected, and which he would have experienced had he chosen more wisely.

Some climates are sedative and relaxing, others tonic and bracing, some are moist and warm, others dry and cold; yet they may all be suited to certain persons and to certain complaints. There are some characteristics, however, which are indispensable to a healthy climate. These are a freedom from miasmatic vapors such as cause fevers and similar disorders, and an equable temperature, that is, one in which the differences between the warmth of day and night and one day and another, are not very marked, and where abrupt alternations of temperature do not occur.

A considerable amount of moisture in the air is beneficial to patients who have irritable throat and lungs, but is not likely to prove of use to a rheumatic or gouty invalid. The decision between a warm and cold climate may generally be correctly made by observing one's own sensations. If one can bear cold without

much discomfort and without a disagreeable sensation of chilliness; if one is habituated to out-door exercise in winter, and is not subject to catarrh and cough at that season; if the general health is better in winter than in summer; if heat produces much exhaustion; and if there is a tendency to torpidity of the liver or "biliousness," the probability is that a dry cold climate like that of Minnesota would be more suitable than a warm and moist one like that of our extreme Southern States. Should the reverse of all this be true, the wiser plan is to obey these suggestions of nature, and seek that temperature in which one feels most comfortable.

THE CLIMATES OF THE UNITED STATES.

The States which border on the Atlantic Ocean, north of Florida, all have climates subject to sudden and considerable variation, and are in most localities damp and exposed to severe winds. On these accounts they are for consumptives and rheumatic persons the least healthful of any in the Union.

West of the Appalachian Mountains the air is much drier, and increases in this quality the nearer we approach the great chain of the Rocky Mountains. As a consequence, it is often found that "moving out West" exerts a most excellent effect on the health of those who, in their eastern homes, have been threatened with attacks of pulmonary troubles. On the Great Plains, which stretch eastwardly from the base of the Rocky Mountains, hardly any water falls, and though

the herbage is scanty and the soil thin, they offer a salubrious home for thousands who, in the dampness of our eastern seasons, would certainly die young.

Although in the Mississippi Valley the winters are colder and the summers hotter than in the same latitude on the Atlantic coast, yet the daily changes are not so great, and the atmosphere is as a rule much drier. In the more southern portion of this immense valley, the extensive swamp land and the heat combine to render it unhealthful, much fever and ague and allied disease prevailing. But in the north the soil is higher and drier, the temperature lower, and the conditions generally more favorable to health. Wisconsin and Minnesota enjoy a wide-spread fame for their salubrious winters. They are indeed cold, much colder than the eastern seaboard, the snow covering the ground for four months, and the mercury frequently 10° and 20° below zero. But they are

> "Like a lusty winter,
> Frosty but kindly."

Even tender invalids, to whom the raw air of Boston, New York, or Philadelphia is absolutely painful, can expose themselves to the dry cold of the northwest for hours with comfort and benefit. St. Paul, in Minnesota, has been the most popular health resort of the State. But it enjoys no advantages, except facility of access, over many other parts of that and neighboring States.

For consumptives who are best suited with a cold climate, a region even more promising than Minnesota

is the great interior plateau which lies between the Rocky Mountains on the east and the Sierra Nevada on the west, a vast plain elevated from six thousand to nine thousand feet above the level of the sea, and intersected by numerous mountain chains reaching into the regions of perpetual snow. Its winds in summer are easterly, and in winter variable. Drought prevails throughout the year, for the easterly summer winds bring no rain, as they are portions of the tropical trade-winds, and those from the Pacific on the west are deprived of their moisture in crossing the elevated peaks of the Sierra Nevada. This region, therefore, which is the most famous mineral district of our country, has all the requisites of a model climate for those afflicted with pulmonary disease. It corresponds in North America to the lofty table-lands of Bolivia in South America, in the arid slopes of which consumption is a disease unknown.

THE MOST HEALTHFUL WARM CLIMATE.

As we have said, very many patients, indeed we believe the decided majority of those who require change of climate, will be more benefited by a warm than a cold winter climate. It is, then, of even more importance to discover one which will combine the most numerous advantages with the fewest drawbacks. In doing so we shall as before confine ourselves to our own country, as those who propose a journey to Europe or the tropics for this purpose can readily find abundant sources of information elsewhere.

There are only three localities between which we need trouble ourselves to choose; the uplands of South Carolina, the peninsula of Florida, and southern Texas.

The uplands of South Carolina have cool, dry, and bracing winters. The soil is light, and covered with pine and hard-wood forests. The water is pure, and the accommodations for invalids, at several points, especially Aiken, if not all that can be desired, yet much better than are often found. At this town, which is a thriving place of about fifteen hundred inhabitants, the surface is six hundred feet above sea level. The mean annual temperature is 62° Fahr., while the mean temperature of December, January, and February is from 45° to 50°. Frosts commence about the middle of November, and cease about the middle of March. The winter winds are from the east and north, but bring no rain. Malarial diseases are unknown at any season of the year. Such a climate is exceedingly well adapted to those who would find the severe dry cold of Minnesota irritating, the damp cold of the northern Atlantic States painful and depressing, and the moist warmth of Florida debilitating.

Florida is of all parts of our country that most visited for purposes of health. It is said that twenty thousand people seek it every winter with this object in view. Its climate has been studied with especial reference to salubrity by several able medical writers, among whom we may mention Dr. D. G. Brinton, of Philadelphia, whose admirable little book, "*Florida and the*

South," recently published, is the principal source to which we are indebted for the facts concerning it.

The model warm climate for invalids must satisfy four conditions: it must have an equable temperature, moderate moisture, moderate and regular winds, and freedom from local diseases. There should be no sudden transitions from cold to heat, and the heat should not be excessive, not above 75° Fahr., as otherwise it will prove enervating to many constitutions.

Southern Florida undoubtedly meets these requirements more completely than any other portion of our country, broad as it is. The temperature of the winter months averages from 60° to 70°, frost and ice are entirely unknown, and the cold north gales of the higher latitudes are tempered to bland winds by the time they reach this favored region. The air is moist and soothing, laden with the healthy aroma of the sea, and the balsamic fragrance of the pine forests. Although in the interior swamp fevers are common in the early autumn, this is not the case in winter, and on the sea-shore and numerous islands they are altogether unknown. The warmest climate of the United States is on the southeastern extremity of Florida, near the Miami River. It is also the most equable and the most healthful. The reports of the surgeons of the United States Army unanimously speak of it as by far the most favorable in this respect of any in our territory. It much surpasses that on the banks of the St. John's River, which is and has been that most frequently chosen by invalids.

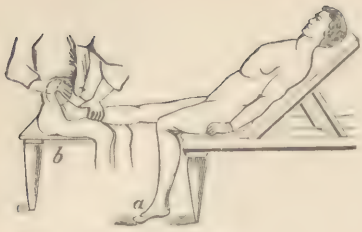
Southern Texas has also often been mentioned with

praise in this connection. It is less warm, somewhat more variable, and with a drier air than Florida. Those who require a warm and dry rather than a warm and moist climate will do well to give it the preference. The winter temperature of Corpus Christi, Texas, is about that of Jacksonville in Florida, and considerably cooler than Key West. It is also, though in the hottest district of Texas, subject to cold gales, called "northers," quite trying to delicate lungs.

GENERAL DIRECTIONS IN CHANGING CLIMATE.

Whatever climate is decided upon, let no one imagine that merely by going thither he is straightway to throw off his load of ills and return restored. There are no known Fountains of Youth, by bathing in which we can bring back the vigor of youth and wash off all our maladies. We must assist and supplement the restorative powers of climate by scrupulously observing numerous rules of hygiene, both mental and physical.

In the first place, we should diminish to the utmost in our journey thither the discomforts and annoyances of travelling, trying enough to the well, seriously injurious to the sick. The journey should be broken by frequent rests, the mind kept placid by the sight of entertaining objects, and by judicious arrangements. The meals should be taken at regular hours, and in quantity and quality differ as little as possible from those to which the invalid has been accustomed. The sleep should likewise be regular and unbroken, and,



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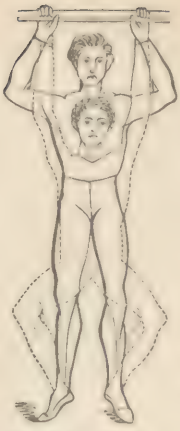

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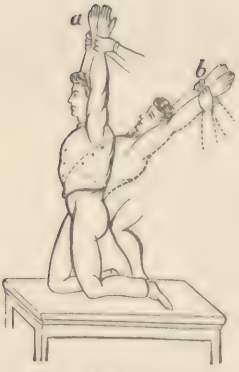

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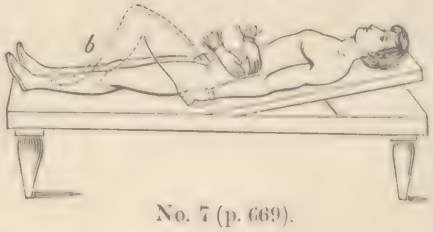

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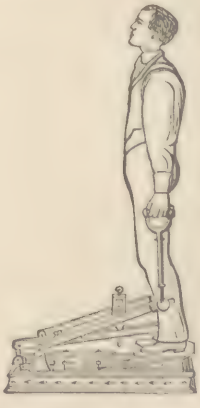

Lifting Cure (p. 671).

To face p. 663.

therefore, night travelling be avoided. The night air should always be shunned, and excess *of any kind* absolutely interdicted. The clothing should be of wool, and sufficient to guard against any chilliness. Moderate and regular exercise should be sought whenever possible. The bowels should be maintained regular by some gentle laxative, such as we shall mention on a later page.

The first effect of a warm climate on many constitutions is to bring on a "bilious" attack, characterized by headache, sick stomach, slight fever, and diarrhœa for a few days. It can best be avoided by a sparing diet, by avoiding fatigue, the rays of the sun, and indulgence in fruit or spirituous liquors. The treatment is rest in bed, some citrate of magnesia or other cooling laxative, and a low diet.

THE SWEDISH MOVEMENT CURE.

An eccentric but learned Swede, by name Ling, in the early part of this century invented a series of movements, to be performed with the aid of an assistant, which were to exert a curative effect on diseases. Since his death his plan has been extended and carried out with great success in various parts of Europe, while in this country it has been introduced and popularized by Dr. Charles F. Taylor, of New York.

Its application is limited to diseases of a chronic character, where there is no inflammation or irritation, and especially to those which are dependent upon a

want of proper circulation of the blood. In many of these it is exceedingly efficient, surpassing any other means within the scope of medical art. We shall explain and illustrate its application in several of the most common diseases in which its value has proved most conspicuous.

The theory of the movement cure, its "first and last object," to quote Dr. Taylor's expression, is to secure a proper circulation of the blood. When this is secured, in many cases there will be no further need of medical aid. To accomplish it, a very varied series of movements of every part of the body has been planned, such as bring every muscle into action, and draw to that part, consequently, an unusual flow of blood. These movements can be made by a person alone, but are more certainly efficacious when aid is rendered by an assistant, and their exact character and sequence superintended by one skilled in the anatomy of the body.

It is a common error to suppose that in order to derive benefit from exercise it must be carried to the point of fatigue. So far is this from being the case, that in persons whose systems have reached a certain stage of exhaustion any fatigue whatever is always injurious. Indeed, as a general rule, persons who are in feeble health *should never fatigue themselves*. In taking exercise, they should always stop short of that point. For this class the localized movements are admirably suited. They impart all the advantages of exercise and escape its drawbacks.

Any one who has frequented a gymnasium will

have observed that feeble persons, instead of becoming flushed, heated, and finally tired by exercise, turn pale and complain of trembling and exhaustion, passing even to faintness. This shows that their exercise is not suited to them, and instead of increasing their vigor, will certainly injure them. No one should continue when thus affected, but should choose lighter and less-prolonged modes of exertion. Whatever exercise is adopted, its early and permanent effect should be to cause a rush of blood to the extremities, to heighten the color in the cheeks, and to warm the hands and feet. There should be no palpitation of the heart, shortness of breath, or nervous exhaustion. What the movement cure aims at is to provide this kind of exercise, so gently graduated that the invalid who cannot leave his couch can yet enjoy the benefits of it. This it successfully accomplishes.

MOVEMENTS FOR COLD HANDS AND FEET.

The most common sign of a want of proper circulation is a constant tendency to cold hands and feet. These extremities feel cold and damp to the touch, and suffer much in cold weather. The remedy for this is to flex and extend the various joints of the extremities in a slow and uniform manner, the force being increased by being resisted by an assistant. Even entirely passive movements, that is, those made by the assistant manipulating the extremities, have a like effect. It is important to remember that these, and all the movements used in this system, must be

repeated slowly and evenly for five or ten consecutive times to have the desired effect.

The accompanying illustrations, which we borrow from the excellent work of Dr. Taylor on the *Movement Cure*, will exemplify some of the motions which are adapted to relieve the trouble of which we are speaking.

In the movement here represented, the patient reclines on a seat with a movable back, with his leg and foot in the lap of an assistant. The latter places the palm of his hand on the toes, and moves them around in a circle, so that all the muscles and tissues are put in rotation quite up to the knees. Let those who are suffering from cold feet have this movement practised upon them for a few minutes, and they will soon convince themselves of the efficacy of the movement cure. They will experience not only an agreeable sensation of warmth in the feet, but a general feeling of comfort, extending throughout the whole body, due to the relief of congestion of all the internal organs. The test is so simple, that we urge all of our readers to try it the first time their feet are unpleasantly cold.

Another movement of similar effect is for the patient, in the same position, to extend the foot very steadily and slowly against the resistance of his assistant, and then the latter to take the foot and bend it forcibly against the resistance of the patient. When this is repeated a dozen times, the foot will usually be found comfortably warm. The same motion can be made with the knee-joint, with equally satisfactory

results. It is like putting the leg in a warm bath. The application of a similar movement to the hand and the forearm will readily be understood without special instructions.

When it is desired to cause a gentle flow of blood to all the extremities, one of the best movements is that represented in the sketch (No. 2).

The invalid, it will be observed, takes hold of a horizontal pole a few inches higher than the head, and courtesies down till his arms are straight, where he hangs a few moments, and then slowly straightening the legs, rises into the first position again. This, like all other movements, should be repeated, with regularity, eight to ten times. It requires slight effort, and causes a very decided flow of blood to both arms and legs.

A third movement, which brings the blood to the external muscles over the whole body, and admirably relieves all internal congestions, is shown in the cut (No. 3).

This represents a person hanging by the hands to a horizontal pole. The legs are to be extended from *a* to *b*, against the efforts of an assistant, and then brought back into contact against similar resistance. The result of this is that not only the legs and arms, but the whole lateral and external muscles of the body, are put upon the stretch, and a most agreeable glow, and feeling of lightness and relief, are extended throughout the whole body.

MOVEMENTS FOR CONSTIPATION OF THE BOWELS.

This is a complaint to which those especially are subject whose occupation obliges them to remain in a sitting posture most of the day. It is not only annoying in itself, but paves the way for the entrance of a multitude of maladies. Every care should be taken not to allow it to progress this far. Of the means of relief, there is probably none at once more efficacious, more durable, and more convenient than a judicious system of movements.

What is required is a more decided flow of blood to the bowels and the muscles which cover them. This will increase their life and their activity, and effectually dispel their sluggishness. We must not depend upon drugs which artificially excite the bowels, and leave them afterwards in precisely the same state they were before, nor yet on injections which mechanically wash out their contents, yet do not furnish the first condition for a new, healthy action. We must aim, on the contrary, to mechanically agitate the contents of the bowels, to bring a strong flow of blood to them, and give them the necessary elements of health. This we can do by judicious movements impressed upon them. One of these is represented in the cut (No. 4).

Here we see the patient kneeling upon a bench, his hands over his head. An assistant places his knee against the buttocks, seizes the extended hands, draws them slowly but firmly back, and then pushes them forward, always against the patient's resistance. The same motion may be made forward and sideways.

Thus all the muscles of the abdomen are put upon the stretch, the blood called to them, and the bowels with their contents agitated.

Or a position can be assumed upon a table as in the figure No. 5. The assistant seizes the ankles and presses them down from *a* to *b*, then brings them to a horizontal position and elevates them or moves them sideways, as usual, against resistance. This expands the front of the whole body, and acts especially upon the contents of the abdomen.

The figure No. 6 shows another excellent movement for constipation. The invalid is fastened to the post by a strap around the hips, and an assistant lays hold of the shoulder and rotates the body in a circle (as represented by the dotted line), always in such a way that the trunk is carried back of the perpendicular, and the motion is through the abdomen.

Persons who have long been in the habit of depending upon injections to secure a regular movement of the bowels, will find this movement peculiarly adapted to their cases.

Another and valuable series of motions to the abdomen can be imparted by an assistant steadily and gently *kneading* the abdomen. The patient lies upon a couch or bench, slightly elevated at the head, and with or without the knees drawn up.

The pressure should be made in the course of the bowels, and should not be a series of *pushes*, but rather a series of sudden shakes and vibrations.

MOVEMENTS FOR DYSPEPSIA.

This malady is so frequent, and presents so many different features, that it is difficult and well-nigh impossible to suggest any treatment which will suit a very large majority of cases. A few hints, so far as the movement cure is concerned, are all we can give. Whenever there is tenderness on pressure over the stomach or abdomen, the movements should be very gentle, and confined to the extremities; when there is no such tenderness, they should be more decided, and act on the muscles in and over the stomach.

The gentle kneading of the stomach, with the knee drawn up, which we have recommended above for constipation, will be found of service. So, also, if the patient sit with feet extended, and one hand above his head, so as to put the abdominal muscles on the stretch, and an assistant place a hand just below the ribs, and press upward and inward, with a vibratory motion, an excellent stimulating effect will be accomplished.

Another, more powerful, movement can be executed on the horizontal bar. The bar is just above the head of the patient. He graps it with both hands, about a foot apart, and swings himself slowly in a circle, or bends from side to side, preferably against the resisting hand of an assistant.

The centre of motion is the stomach or abdomen, and the result is a decided flow of blood to the part.

Or, standing firm, the body can be bent forward and backward, to the left and the right side, the hips

remaining immovable, and the abdomen being the fulcrum. The result is similar to the foregoing movement, and they can with benefit be alternated.

The above description will sufficiently indicate the character of the movement cure, and its adaptation to several of the most frequent complaints, in those especially for which it is best suited. It is also of service in spinal deformities, pulmonary consumption, and diseases of women, but we do not consider it of so much value in these, except perhaps the former, as in those we have described.

Chronic diseases only are to be treated by it, and its action is slow and the movements must generally be regulated by some one who is versed in anatomy. Those we have given, however, are simple, and may be put into practice by any one. Relief must not be expected immediately, as the good results of the treatment are visible only after it has been instituted some weeks or even months. But when it does arrive, it is permanent and complete.

THE LIFTING CURE.

One of the branches of the movement treatment is the so-called "lifting cure." It has been tried within the last few years by many persons suffering with general debility and various chronic complaints, with good success.

As its name implies, it is a lifting exercise, very light at first, if the patient be much debilitated, and

very gradually increased with the improvement in health and strength of the patient.

The point is to secure longitudinal pressure upon the spinal column without shock. The apparatus employed is therefore so constructed as to prevent the weight being lifted all at once, the full exertion being only applied at the end of the lift, and the power exerted being gradually increased from the first beginning of the effort, till the weight is raised, when the effort is sustained uniformly for a few seconds, in holding the weight suspended, and then gradually diminished to the end. The patient then rests for a short time, alternately lifting and resting until the exercise is completed. Thus, neither shock nor sudden strain is possible, no matter how great the exertion may be.

Several different machines designed to secure these objects can be purchased in any of our principal cities. We do not know that either has decided advantages over the others. We append a sketch of one of them, which will give an idea of their construction.

ELECTRICITY.

Ever since the invention of the "Leyden jar," a century ago, by which the electric spark can be so readily displayed, there have been constant attempts to apply it as a curative agent. So familiar has this powerful and mysterious agent become, that we can dispense with a description of its varieties and how they are generated. Its forcible effect upon the nerves

when a "shock" is received, would seem to promise not less striking results when applied to various diseased conditions. And, moreover, there have not been wanting authentic examples where even so violent a dose as that received from a stroke of lightning has resulted in the cure of long-standing palsies and deafness.

Every instrument-maker nowadays keeps on hand some of the many apparatuses designed to apply electricity to medical use. These are generally of one of three forms: either the electric fluid is developed by turning a crank—magneto-electric machines; or it is generated by the chemical action of two plates of metal immersed in a cup containing an acid solution, and by an artificial magnet—electro-magnetic machines; or they consist of plates of different metals fastened together, which evolve a small amount of electricity by acting upon each other—electric disks, chains, rings, etc. Of these, the first mentioned are the most convenient, the second the most efficient and manageable, the third the most feeble and uncertain. Those who have used this agent most extensively are by no means of one opinion as to which of the two first-mentioned varieties act more satisfactorily, though the tide seems turning in favor of electro-magnetic machines, several of which of great ingenuity and simplicity are manufactured.

Most of these machines when sold are accompanied by pamphlets describing their construction, and giving rules for their use in diseases. But it is well to learn the general principles of employing this potent agent

from some more reliable source than a dealer's pamphlet.

HOW TO APPLY ELECTRICITY.

Every apparatus furnishes a positive and negative current. Each is conducted from the positive or negative pole of the instrument by a flexible metallic cord, to the free end of which an "excitor" is attached. The excitors vary in form and size according to the object to be accomplished. Some are thin metal plates for applying over the surface of the skin; others are pointed or olive-shaped, to excite the deeper muscles. Hollow cylinders containing moistened sponges are sometimes used. Another excitor is a brush of fine wires, or of camel-hairs. Or, instead of an artificial excitor, the hand of the operator may be employed.

In the latter manœuvre, one pole, usually the negative, is adjusted to some portion of the patient's body possessing but little sensibility, while the other is held by the operator, who, having dried the skin perfectly, passes the back of his hand over the portions of the surface he wishes to stimulate. If the current is strong, this will produce a sharp, stinging sensation, and if continued, will produce a marked redness lasting some minutes.

The process called "general electrization" is similar to this. The patient seated, places his feet on a metal plate connected with the negative pole of the instrument, while the operator, taking hold of the positive cord, passes his disengaged hand over the whole surface of the body, thus stimulating the skin in all

parts. This is claimed to have a peculiarly bracing and invigorating effect. Such a sitting should last about fifteen minutes, and be repeated daily or every other day.

The direction of the current influences decidedly the sensation produced. As a rule, the negative pole should be placed more toward the extremities and the positive more toward the central portions of the body; in other words, and to speak more accurately, the current should be made to traverse the nerves in their course from the centre to the extremities. A current in the direction of the nerves is soothing and strengthening; and one in the reverse direction is exciting and stimulating. Hence both have their appropriate uses.

DISEASES BENEFITED BY ELECTRICITY.

There are in all cities pretenders to medical science who set up to cure all diseases by electricity. Such may always be confidently held to be impostors. Neither this nor any other agent is a panacea. There are many complaints, especially those of a chronic character, in which it is available; while there are many others in which it is wholly useless or positively injurious.

To commence with one in which its curative powers are strongly displayed, we mention *palsy*. When this does not depend on some actual organic change in the brain or spinal column, it promises favorably under electrical treatment. Such cases, for example, as follow from inflammation of a joint, blows, burns, rheu-

matism, typhoid fever, diphtheria, etc., will generally yield wholly or partly to the regular application of the electric current over and through the affected muscles.

In *lead-palsy*, or that which results from the system being poisoned with lead, the muscles of the arm are affected in such a manner that the hands droop, and the peculiarity is presented called "dropped wrist." Sometimes the lower extremities are affected, and in a few cases the palsy extends over the whole system. These cases are especially benefited by electricity, and they are most rapidly stimulated by using various currents, and by passing them in both directions.

ELECTRICITY FOR LOSS OF VOICE.

The *loss of voice* which occurs after prolonged singing or public speaking, and from various excitability, the inordinate use of tobacco, chronic bronchitis etc., has been successfully treated by electricity. The current is passed from the neck to the throat and chest, and from one side of the neck to the other. Sometimes a single application will restore the voice when the patient has not been able to speak above a whisper for years; but generally the daily use of the battery for three or four weeks is required in order to complete the cure.

ELECTRICITY FOR THE SPECIAL SENSES.

When *blindness* depends upon a deficiency of nervous power, it may be relieved by the use of the

current. One of the excitors, the positive one, may be placed in the mouth, and the other beneath the eye; or one on one temple, and one on the other; or the positive excitor may be pressed against the back of the head, and the negative, tipped with a wet sponge, over or against the eye. In many cases of simple *weakness of the eyes*, and when they are fatigued from over-exertion, the application of weak currents from the back of the neck to the eyes, using an eye-cup filled with water and connected with the negative pole, produces a feeling of relief and stimulation. A dread of light, and pain on exposure to it, are frequently relieved by such a current passed through the hand or a soft brush, from the forehead and eyes to the neck and shoulders.

Many cases of *deafness* can be treated with the best results by electrization. This is best accomplished by half filling the ear with water and introducing the negative excitor, while the positive one is placed on the nape of the neck. A very weak current should be used at the commencement, and be increased as it is found necessary.

Loss of the smell is not a common affection, but is sufficiently annoying to lead those who suffer from it to seek relief. Persistent electrization has been known to cure obstinate cases, and may be used with good prospects.

ELECTRICITY FOR NEURALGIA, POISONING, AND RHEUMATISM.

Neuralgia will be benefited by electricity when it does not arise from a change in the structure of the nerve itself. The current should be steadily applied, gradually increased as the patient will bear it, and generally in a downward direction. Occasionally the relief will be almost instantaneous, and if the case be of recent origin, will continue well. If of long standing, the treatment will have to be persevered in, and even prolonged after the patient is apparently cured, to prevent the pain from recurring.

In *opium-poisoning*, when the patient is in a profound sleep and cannot be roused by other means, he will sometimes respond to the electrical current. A child five days old had taken two drops of laudanum by mistake; ten hours afterwards, when the child had been pronounced beyond the reach of human aid, electricity was applied to keep up the breathing, and shocks were passed from one nipple to the other, and in other directions, to arouse it thoroughly. After ten hours' unceasing exertions the child was sufficiently recovered to be intrusted entirely to its mother.

The same persistent use of this agent is often the only successful resource in cases of persons who have been reduced to a condition of apparent death or insensibility by drowning, carbonic acid fumes, etc. It must be persevered in for a long time, and not to the neglect of friction, artificial respiration, and other well-approved means of resuscitation.

Chronic rheumatism, stiff joints, and want of action of the muscles of the limbs, are often materially relieved by the judicious employment of a battery. Generally debility and want of tone in the system respond most readily to general electrization, as already described. Certain kinds of tumors and swellings will disappear under the long-continued action of the current. Old ulcers sometimes heal under a similar influence. Impotence and debility of the reproductive powers can frequently be cured. And one of the best hair tonics is stimulation of the scalp by the use of the excitors.

CHAPTER IV.

ON MEDICINES.

What are medicines?—Sources from which medicines are derived—How medicines act—The various ways in which medicines are given—The forms in which medicines are dispensed—Medical weights and measures—What "domestic medicines" properly are.

SECTION I. THE MEDICAL PROPERTIES OF COMMON ARTICLES. Alcohol and alcoholic liquors—Alum—Borax—Coal oil—Charcoal—Common salt—Cream of tartar—Ginger—Lemon juice—Lime—Mustard—Olive oil—Red pepper—Saltpetre or nitre—Soda—Sulphur—Tar—Turpentine—Vinegar—Water.

SECTION II. THE MEDICAL PROPERTIES OF DOMESTIC PLANTS. When and how to gather medicinal plants.

1st. *Trees and Shrubs.* American poplar—Bear-berry—Black elder—Blackberry—Burdock—Cleavers, or goose-grass—Dogwood—Juniper—Oak bark—Persimmon—Poke-weed—Sassafras—White walnut—Wild cherry—Willow.

2d. *Herbs and Plants.* Calamus—Dandelion—Flaxseed—Fleabane—Garlic—Hops—Horseradish—Lettuce—Lobelia—Parsley—Peppermint—May-apple—Sage—Senecka snakeroot—Thorn-apple—Tansy—Virginia snake-root—Wormseed.

SECTION III. THE MORE IMPORTANT CHEMICAL AND FOREIGN DRUGS.

1st. *Vegetable Drugs.* Aloes—Assafœtida—Camphor—Castor oil—Jalap—Ipecac—Opium—Peruvian bark and quinine—Rhubarb—Senna.

2d. *Mineral and Chemical Drugs.* Bromide of potassium—Calomel—Carbolic acid—Chloral—Chlorate of potash—Iron—Magnesia—Sugar of lead—Epsom salts.

THE various means for treating diseases which we have hitherto spoken of as furnished by nature and by mechanical ingenuity are all useful,

but are all subordinate and secondary to *medicines*. These are, after all, our most convenient, potent, and valuable weapons wherewith to combat the inroads of sickness. There are, however, some prevailing prejudices and misunderstandings about them of which we wish to disabuse our readers. So we will first inquire

WHAT ARE MEDICINES?

In a general and broad sense, they are whatever substances are used for the cure of disease.

It is a foolish idea to suppose that a medicine is something which is always offensive to the senses or distressing in its operation, or something which cannot be found outside of an apothecary-shop. So far from this being the case, some of the most efficient medicines are articles of daily food, as salt, sugar, and milk; others are looked upon as luxuries, for a plate of ice-cream or a glass of champagne is at times just as truly a medicine as a dose of salts and senna or calomel and jalap. The absurdity of those who inveigh against the use of "drugs" is plain enough when we remember that these very drugs are often prized as condiments, spices, and food where they are produced. Tobacco, the hop, ginger, and blackberries are drugs in so far as they are medicines; but plenty of people use them who are not asked to do so by their doctor.

Another unworthy and absurd prejudice exists against drugs because they are "poisons." Now, it is very true that many medicinal substances are poi-

sonous, *if taken in improper quantities.* But so is everything else. Pure cold water, swallowed by a person in a heat, has been known to kill as instantaneously as prussic acid. The rays of the sun, which give life to nature, destroy every summer many a victim as swiftly as the most fatal contents of the chemist's vials. It is almost a law of nature that whatever is capable of destroying life can, in a certain less amount, under given circumstances, save life. The capacity for good equals the capacity for evil. All that is required is the intelligent mind to discern when the need exists, and the skilful hand to measure and administer the proper quantity.

Those who declaim against the use of drugs, while yet they do not hesitate to use cold water and mustard, and such simple remedies, merely betray a timidity which arises from ignorance; for to the trained physician there is not a particle more danger in prescribing strychnine and arsenic than the simplest household recipe.

SOURCES FROM WHICH MEDICINES ARE DERIVED.

Every realm of nature contributes something fraught with healing virtues to the human race; and he has little thankfulness in his heart toward a beneficent Providence who doubts the propriety of using any of them. Foolish people object to "mineral" medicines; as if our Divine Creator had issued a mandate that the mineral kingdom should furnish no substance "with healing in its bosom," but only vegetable and

animal products should be thus endowed; as if minerals, such as salt, iron, and lime, do not constitute a part and an indispensable part of our daily food; as if, finally, Nature herself does not prepare, under the form of mineral waters, skilfully compounded mixtures of world-renowned efficacy. Nothing can be more contrary to common-sense, daily experience, and a proper conception of the celestial government, than the theories and assertions put forward by the "herb doctors," so numerous in some parts of our country.

The vegetable, the mineral, and the animal kingdoms all furnish us with medicines. They seldom exist in a pure and separated state, but are to be extracted from the substance in which they are found, by human art. This is pharmacy, the art and business of the apothecary and druggist.

The majority of medicines come from the tropics, but there is no zone in which medicinal substances do not occur. The root, bark, leaves, and flowers of plants, the chemical combinations of the metals, and the secretions and bodies of animals, exert definite actions on our bodies, which we can take advantage of to expel diseases and restore health.

HOW MEDICINES ACT.

Most persons who have not given any particular thought to the subject imagine that medicines act by a special power of curing a given disease. They ask from the physician what will cure pleurisy or typhoid fever.

Now, there are very few remedies which act in this way—not more than half a dozen in all, perhaps. They are known as "specifics," and heal by virtue of powers which we cannot explain. They seem to act as an antidote acts on a poison. Quinine is such a specific in fever and ague, colchicum in gout, iodine in goitre, and there are one or two more.

But the vast majority of medicines are not remedies for *diseases*, but for *symptoms*—that is, for unhealthy conditions of the system which reappear in similar form, only differently grouped, in a vast variety of diseases. For instance, costiveness is a symptom which is found in very many complaints; feverishness is another; sleeplessness another; debility another; pain another; diarrhœa another; and cough another. All these may appear in the course of the same complaint, as in typhoid fever for example, and our medicines must be directed against them, not against the diseases. This is called "treating by symptoms," and in ninety-nine cases out of a hundred it is all we can do.

MEDICINES CLASSIFIED.

On this account medicines are classified according to what symptoms they are adapted to overcome; and in works on materia medica drugs are arranged under such classes.

There are no great number of symptoms, and a very few minutes' study is sufficient to master all the more important divisions of drugs, and to understand the terms which are applied to them.

An *anodyne* is a medicine which relieves pain, soothes the system, and induces sleep; for instance, opium or chloral.

An *anæsthetic* carries the soothing influence to the extent of complete insensibility, even to severely painful impressions; as ether and chloroform.

An *astringent* binds the bowels and checks the natural discharges.

A *cathartic*, purgative, or laxative has precisely the opposite effect, loosening the bowels, and leading to diarrhœa.

An *emetic* produces vomiting, causing the stomach to reject its contents.

An *expectorant* loosens a cough, aiding the lungs to throw off the phlegm and mucus which collect in them when inflamed.

A *stimulant* excites promptly the whole system for a short time, but has a merely temporary effect.

A *tonic* strengthens the system gradually but permanently, increasing the appetite, and aiding digestion.

A *febrifuge* lessens the heat of the skin and other symptoms of fever.

A *diuretic* acts upon the kidneys, causing a freer flow of urine from the bladder.

A *diaphoretic* increases the perspiration, causing an augmented flow of sweat from the skin.

Many medicines exert several of these effects at the same time; and some act differently, depending on the circumstances under which they are taken. Thus some diaphoretics will act as such if, after taking

them, the patient remains quiet and dresses warmly; but if he walk about in a cool air, they will exert their action on the kidneys, and thus become *diuretics*.

As the number of symptoms is quite limited and readily recognized, it can now be understood how, with a few active remedies, one of each of the above classes, and two or three specifics added, a person may be prepared to render efficient aid in relieving the sick.

It is of importance to make a judicious combination of several drugs acting in a similar manner, as it has been found that the effect is much more salutary. Hence the value of well-selected recipes, and hence the point of the anecdote often told of an eminent old physician, who remarked, "When I commenced practice, I had twenty remedies for one disease, now I have one remedy for twenty diseases." What he wished to convey was that he had by long experience settled upon certain formulas as better than all others to combat certain symptoms.

Not that we would have it supposed that the study of *medicine* is chiefly or even largely the study of *medicines*. This is an erroneous popular fallacy which we distinctly deny. The study of medicine is chiefly the study of *disease*, and it is this reason that renders it impossible for "every man to be his own physician." He must have experience in detecting the symptoms of sickness, and in recognizing their various complications. This requires years of study.

THE VARIOUS WAYS IN WHICH MEDICINES ARE GIVEN.

Usually, medicines are given by the mouth; but this is by no means the only way. Not unfrequently we wish a more direct effect than can be produced through the medium of the stomach, and consequently they are applied directly to the spot affected. This may be accomplished by several methods.

For the interior of the throat, we use a *gargle;* for the mouth, a *wash;* for the nostrils and lower bowel, an *injection.* The last mentioned is thrown up by means of a syringe, and can very frequently be resorted to with advantage, especially in young children.

On infants, and persons of sensitive skin, anointing or "rubbing in" a medicine or placing it upon the skin is often efficient. Thus, instead of forcing a nauseous dose of castor oil down a baby's throat, it will act just as efficiently in the majority of cases to rub the oil well into the skin along the spine or over the stomach. Itch and many skin diseases require no other manner of administration. Anointing is also of value in erysipelas, scarlet fever, bruises, etc. This is called the "external" or outward application of medicines, and when put up for such uses, they form poultices, plasters, blisters, ointments, cerates, and liniments.

Of recent years, a very small syringe with a needle-like point has been used to inject medicines under the skin. This is called the *hypodermic* method, but it is not one which can be introduced with advantage in the home treatment of disease.

Another plan, and a very efficient one in many diseases, is to have the patient breathe in a vapor charged with the properties of some medicinal substance. He then takes it into his lungs, whence it passes into the blood. This is a very ancient and approved method. Sometimes the evaporation alone of the substance is sufficient to impregnate the inspired air, as in the case of ether and chloroform; at other times it should be burned or heated, as in the use of tar vapor, resins, etc., and the smoke of tobacco, thorn-apple, nitre paper, etc. The steam from boiling water, either simple or with medicinal herbs, etc., added to it, can be very conveniently inhaled by pouring the water in a vessel, and making a large cornucopia of a newspaper, with a sufficient opening at the smaller end to allow it to receive the nose and mouth.

Of late years liquids have been introduced into the air-passages in the form of a fine spray, and this method is called the "atomization" of fluids. Various instruments have been resorted to to facilitate this plan. The "hand-ball atomizer," in which a current of air is used as the means of reducing the liquid to a fine spray, is the simplest, and is very readily used by any person. By this means we can administer almost any medicine in solution, and bring it directly into contact with the interior of the throat and lungs.

The method of inhalation is one which is deservedly popular, and is, as it were, recommended by Nature herself, for the remedies which she applies are often presented in this form. The balsamic atmosphere of the pine forests, the salt-laden air of the sea-shore, and

the odorous and health-giving zephyr of the spring, all derive their salubrious properties from the invigorating substances in a state of minute division which they contain.

THE FORMS IN WHICH MEDICINES ARE DISPENSED.

So far as the effect of a medicine is concerned, it makes little difference in what form it is given. That is merely a matter of the apothecary's art. The same drug can be put up in a liquid or a solid form—as a pill, a powder, or a solution.

Certain forms are chosen as best adapted to administer certain drugs, because a bad flavor is thus concealed, or because they are most easily put up. Some of the more important forms usually employed are as follows:—

An *infusion* is a solution made either by pouring boiling water on a vegetable product, or steeping it for several hours (twelve to twenty-four) in cold water. In familiar language, it is a "tea." This is a popular and excellent mode of administering those medicines which yield their virtues readily to water. Most herbs, roots, and barks, both domestic and foreign, can thus be given. Infusions are, however, liable to spoil, and must be kept in a cool place, and frequently made afresh.

Decoctions are solutions prepared by boiling the substance in water for a longer or shorter period. They are much less used than infusions, as there are few vegetable substances which will not yield their

remedial principles to cold or boiling water poured upon them. Moreover, the virtues of many plants are destroyed by boiling, and their fine flavor is lost.

Tinctures are solutions of medicinal substances in spirituous liquors. Alcohol, either diluted or not, is usually employed, but any of the strong liquors, such as whiskey, brandy, or rum, may be chosen. This is a favorite form for administering drugs. It presents their active principle in a small volume, it can be preserved unaltered for a long time, and it is well adapted to unite with other substances. It is, however, objectionable on the ground that if taken continuously it may create a fondness for alcoholic stimulants. Therefore, in domestic practice, we do not recommend it.

The so-called *fluid extracts* are preferable. In these the active ingredients of medicines are concentrated into a small bulk in the liquid form by partially evaporating the expressed juices of the plants. They are convenient and elegant, and are now manufactured by a number of leading commercial firms in the United States.

Solid *extracts* are formed when the juices of plants are evaporated so as to lose all or most of their fluid parts. They are generally of a soft consistence, a dark color, and a taste similar to that of the substance from which they are derived. Many of them, however, have much less strength than they should have, owing to want of care and skill in the evaporating process.

Most extracts and other dry substances can be made into *powders*. This is done in a variety of ways,

generally either by grinding in a mill or by a mortar and pestle. Their general action is most marked when they are most finely divided. As most medicines can be brought to this condition without difficulty, and be preserved without losing their power, it offers the most portable, convenient, and safe form for their domestic use. The powders can be taken by mixing them in water, molasses, scraped apple, or any other vehicle, and are far more easily swallowed by the majority of persons than pills. They are not liable to breakage nor evaporation, as fluid preparations, and the dose can be measured with equal accuracy.

Pills can readily be made from powders by adding a sufficient amount of gum, honey, or similar substance to make a stiff paste, from which the pills are rolled by the fingers. Many substances, of which the dose is small, are conveniently administered in this form. Very small pills are called *granules.*

MEDICAL WEIGHTS AND MEASURES.

In putting up medicines in the above forms, and generally in administering them, the greatest care is requisite to give *enough*, but not *too much.* An insufficient or an overdose will do no manner of good, and may result in serious mischief. A common notion prevails among ignorant people that if what they deem a small dose benefits them, a larger quantity should do a proportionately greater amount of good. This is untrue and absurd.

To measure medicines correctly, some acquaintance

must be had with apothecaries' weights and measures. But as few people have at hand fine scales and graduated glasses, we shall, in addition to giving the ordinary tables, add their equivalents in such common measures as spoons, wineglasses, etc., which are always within reach, and are accurate enough for purposes of home treatment. They will not, indeed, suffice when very powerful and poisonous drugs are employed, but this is never called for in domestic practice.

The measures of fluids used in pharmacy are the drop, the drachm, the ounce, the pint, and the gallon; of solids, the grain, the scruple, the drachm, the ounce, and the pound; see pages 552 and 553 for the tables of measures.

WHAT "DOMESTIC MEDICINES" PROPERLY ARE.

As we have said, medicines are derived from all the kingdoms of nature, and from all the zones of the earth. Sea and land, earth and air, the vegetable, the animal, and the mineral world, alike contribute means to preserve the health and extend the life of man. But anything approaching a complete knowledge of all these resources can only be acquired by many years of arduous and exclusive labor.

Fortunately, almost all diseases which we have to contend with in the ordinary history of life can be successfully encountered with a small number of remedies, and still more fortunately, or rather, and to speak more correctly, by a most wise and merciful dispensation of Providence, these few remedies are

nearly always at hand, for many of the most efficient of them are either articles in common use for other purposes, and every ship, every farm-house, every family, is already provided with them, and only lack the knowledge when and how to employ them, or else they are well-known common domestic plants, to be culled from the kitchen garden, the roadside, or the woodland, "without money and without price."

These are the resources which should supply the domestic pharmacy. Every ship captain, every farmer, every mother, should be acquainted with the valuable medical virtues which reside in these articles which are constantly about us, which can be procured at any moment, and which cost nothing. These are what "domestic medicines" properly are, and no education is complete which omits information on this important subject. In thousands of instances lives can be saved and pain relieved by knowing what medical properties even such every-day articles as salt, pepper, and vinegar possess, by learning the virtues of domestic plants, and by understanding in what cases to give them.

Besides these two classes of articles, there are but few drugs, properly so called, which need be introduced into the home treatment of disease. Some of the tropical productions, and some of the mineral and chemical products having special powers, should be known. Although important in their effects, the latter are few in number, and can readily be mastered. Under these general classes, therefore, we will arrange

the whole number of medicinal substances which it is requisite to be acquainted with.

The Medical Properties of Common Articles.

We shall explain in this section the healing powers which are resident in many articles used for the every-day purposes of life. When we discover how many such articles there are possessed of these powers, we are strongly impressed with the importance of learning and remembering how to apply them, for they are nearly always at hand, and frequently as efficient as costly and rare foreign productions.

Some of them are specifics, some of them of power in controlling symptoms. There is a large variety of diseases in which they can be advantageously used, and these diseases are precisely those which are of most common occurrence in this country.

As elsewhere, we shall arrange the various articles mentioned in alphabetical order, for convenience of reference.

ALCOHOL AND ALCOHOLIC LIQUORS.

Alcohol, or spirits of wine, is of very common use in the domestic arts, and there are very few families in which it is not present in some of its forms. It is obtained by distilling fermented grains, as corn, wheat, rye, etc., or other starchy products. All wines, distilled and malt liquors of every description, depend for their strength on the amount of alcohol

they contain. Taken in excess, they all produce *intoxication*, which is due to the alcohol, and is its peculiar effect. Proof spirit is a diluted alcohol, and brandy, whiskey, gin, and rum are composed of alcohol still further diluted (about one-half water), with various flavoring materials added, either artificially or from the grains used in their manufacture.

It has been a serious question whether alcohol in any of its forms should be employed in medicines, on account of the temptation its use offers to intoxication, one of the most deplorable vices which can beset a man. Certainly its frequent or habitual use on every occasion when one "feels out of sorts" is dangerous and to be condemned. No doubt very many drunkards have gone to their dishonored graves owing to the recommendations of their friends or physician to use a little liquor "for their stomach's sake." And we cannot sufficiently condemn the deplorable recklessness of some doctors in prescribing the use of intoxicating drinks.

As we have previously said, the man in health needs no form of alcohol to maintain his powers; and he who is sick can nearly always find some other substance equally efficacious, and free from the objections of alcohol.

Nevertheless, as Providence has endowed this substance with certain healing powers, and as in some of its forms it is nearly always at hand, it is right that we should learn them, and avail ourselves of them in an emergency.

Externally employed, alcohol and distilled spirits

exert two opposite effects, depending on the manner in which they are applied, one *cooling*, the other *heating*. If a part of the body is well rubbed with the fluid, and then covered with a cloth wrung out in it, and the whole wrapped with a dry cloth or a piece of oiled silk, the skin is heated as forcibly as with a mustard plaster. Such an application is very efficacious wherever we want counter-irritation, as in sore throat, pleurisy, gout, deep-seated pains, etc.

On the other hand, the cooling effect is obtained when a part is merely bathed or sponged with the fluid, and it is allowed to evaporate freely. Thus used, it is an admirable application in recent *bruises* or *sprains*. A "black eye" from a blow on the face can most successfully be avoided by constantly bathing the part in alcohol. So also one of the most efficacious means to prevent *bed-sores* in persons who are obliged to remain long confined to their beds, is to bathe frequently the parts exposed to pressure with strong alcohol. For the same reasons, pedestrians will find that bathing their feet morning and evening with strong whiskey will both prevent their blistering and relieve the soreness which is the common result of a long tramp.

As an application to fresh wounds, wine is mentioned among the earliest. Its virtues depend upon the alcohol it contains. Recent *burns*, scratches, and cuts are much relieved by washing with alcoholic liquor, and obstinate old *ulcers* can often be cured by keeping them dressed with light bandages moistened with the same substance.

Used internally, alcoholic liquors should be confined to those cases where it is necessary to tide over some sudden severe prostration of the powers. There is never any necessity for their use for a length of time, while there is manifest danger that if so used, they will become a curse. The terrible exhaustion which follows a gunshot wound or other severe accident sometimes destroys life upon the spot, unless a powerful stimulus is given to counteract the shock to the system. Here some alcoholic drink should be given without hesitation, a half tumbler of whiskey or brandy, or a tumbler of strong wine, in such quantities as the patient can swallow.

So also in the poisoning from the *bites of venomous serpents*, as the rattlesnake and moccason, which abound in the South and West. Large doses of brandy or whiskey should be given at once, and continued until the patient shows signs of intoxication. This will generally prove effective, but it is a warning well worth remembering that this remedy will not succeed when the person bitten has been accustomed to the free use of liquor.

When the system is very much exhausted by *low fevers*, and little nourishment can be taken, it occasionally becomes advisable to support the patient on fluids containing alcohol. This is a very common practice, but physicians are by no means agreed as to how far such stimulants are necessary, and therefore we do not consider that they should be used unless they are plainly demanded to support the flagging powers of life. Their frequent use in colic, cholera,

and dysentery, is as often productive of harm as of good, and it is wiser to substitute some other stimulant, such as ginger or cayenne pepper tea, which is not likely to have injurious consequences.

Of late years many persons have learned to drink largely, under the impression that they could thereby avoid a tendency to consumption. This dangerous doctrine has caused much drunkenness, and has not diminished the deaths from that disease; if anything, by inducing irregular habits, it has increased them; so we entirely discountenance and denounce it as of doubtful curative value, and likely to injure morality.

ALUM.

Alum is always at hand, and often the very article we need to effect a cure. One of its most valuable properties is to *stop bleeding*. This it does promptly, where no large bloodvessel has been cut. The wound should be thoroughly rinsed with a mixture of a heaping teaspoonful of powdered alum in a teacupful of water. For *bleeding of the nose*, take a piece of soft rag, wet it with the alum-water, and pass it gently up the nostril; or throw the water up with a syringe, which is better. When there is *vomiting of blood*, a tablespoonful of the above mixture should be taken every half hour. In *bleeding piles* a salve made by rubbing up a teaspoonful of alum in a tablespoonful of lard will give great relief.

One of our best gargles for sore throat is made from alum; the receipt is:—

Take of—
Cold sage tea, one pint.
Alum in powder, two teaspoonsful.
Honey (or syrup), two tablespoonsful.
Use every hour.

A plain solution of alum in water is nearly as beneficial. In that terrible disease of children, *croup*, alum is perhaps the most valuable medicine we have. A lump should be scraped or powdered very finely, and a teaspoonful given to the child in enough molasses to conceal it. Vomiting is brought on at once, and the child relieved. If it does not have this effect, the dose should be repeated. *Painter's colic*, or *lead colic*, is a painful kind of griping to which those who work in lead and lead paint are exposed. Alum in doses of two to four teaspoonsful a day will often relieve this promptly.

A popular eye-water for sore and inflamed eyes is made by stirring a pinch of powdered alum into a pint of pure cold water. Still better is *alum curd*. To make this, take the whites of two eggs and rub them around with a lump of alum. They will thicken in a few minutes, when they are to be spread on a rag and laid upon the eye. The application is cooling and grateful.

Alum whey is prepared by boiling two teaspoonsful of alum with a pint of fresh milk, and then straining to separate the curd. This can be sweetened and nutmeg added. It is the most agreeable form in which to give alum to children and others. In

diarrhœa of long standing, with watery discharges, it will be found serviceable. A lump of alum the size of a walnut dropped in a cask of water will preserve it free from all impurities. A wash of a teaspoonful of alum in a quart of water is an excellent preventive of *offensive sweating* of the feet, armpits, etc.; and may often be used with success to drive away *pimples* from the face, such as occur in young persons.

Burnt Alum.—When alum is exposed to moderate heat, it swells up and forms a light, porous, dried mass known as burnt alum, which is a favorite application to *proud flesh* in wounds and sores. Equal parts of burnt alum and white sugar are rubbed together, and the powder sprinkled on the flesh, which it destroys with almost no pain.

BORAX.

Every blacksmith uses borax in soldering metals, and it is kept on sale at every country store. Its uses as a medicine, therefore, ought to be generally known. It is principally employed externally. A solution made by adding a teaspoonful powdered to a tumblerful of water, is an excellent wash for *scaly tetter* on the hands or body, for *pimples* on the face, and to relieve the annoying *itching* of the privates with which persons of both sexes are sometimes troubled. A teaspoonful in two tablespoonsful of vinegar will often cure *ringworm*. The same amount stirred up with a tablespoonful of honey forms one of the best applications to *sore mouth* in nursing infants and children.

Equal parts of powdered borax and white sugar may be employed for the same purpose.

COAL OIL.

The natural oil, as it issues from the springs, was well known to the Indians, and used by them as an application to *sprains*, *bruises*, and *sores*. For this purpose it is not surpassed by any liniment which can be bought. It should be well rubbed in, and a rag wet with it be laid upon the swelling, if it is very painful. For *burns* and *scalds* it is equally efficacious. An English surgeon relates that in 1867 he was on board a steamer on Lake Erie when one of the engineers was severely scalded on the right wrist. As nothing else was at hand, petroleum was applied freely to the part, and the bandage wet with it. To the doctor's surprise, the wrist without other treatment healed with remarkable rapidity.

Severe rheumatic pains in the legs, arms, and back are often greatly relieved by thorough and repeated rubbing with coal oil. A physician of forty years' experience, long a victim to *sciatica*, or neuralgic pain in the hip, has told us that he found more relief from this than any other application.

The taste of coal oil is very unpleasant, but it can be given in doses of ten drops in gum-water, or in yelk of egg, three or four times a day, with benefit, in *diarrhœa* and *dysentery*.

Erysipelas has also been treated successfully by anointing the inflamed part with it.

CHARCOAL.

We have already spoken of the disinfecting qualities of charcoal, and how it should be placed in the sick-room to absorb the odors. It does this so completely, that if a piece of fresh meat be covered with a layer of it, no smell of decay will be perceived. The same property renders it valuable in *bad health* and foul breathing from the stomach. A teaspoonful of powdered fresh charcoal should be swallowed on retiring at night.

Impure water can be purified by running it through a layer of coarsely powdered charcoal between two layers of muslin; and by placing a few lumps in a cask, the water will be preserved sweet. When wounds and sores smell foul, a *charcoal poultice* will remedy this. It is made by stirring sufficient of the powder into an ordinary bread and milk or flaxseed poultice until it is black. In *diarrhœa* and *dysentery*, when the discharges smell very disagreeably, a teaspoonful of charcoal should be given morning and evening in some jelly. As a preventive of cholera and contagious fevers, the same amount every morning before breakfast has been highly recommended by good authorities. Finally, to prevent *pitting* of the face in smallpox, probably the very best means is to smear the face with a thick coat of an ointment made by beating up a teaspoonful of powdered charcoal with a tablespoonful of simple cerate or clean lard.

In all cases where charcoal is used for medical purposes, it should be either freshly made, or first heated

to a red heat so as to destroy any substances it may have absorbed. Scorched bread is the most convenient source from which to obtain it.

COMMON SALT.

This familiar substance has medical properties which ought to be known by everybody, as it is always on hand and always cheap. Its effect in small doses is to strengthen and brace the system, to improve the digestion, and to prevent debility. Few people are aware that it is an excellent remedy in *fever and ague*. About eight to ten even spoonsful should be stirred into a pint of slippery-elm water, and the whole of it should be taken in small and regular doses between the attacks.

On the sudden occurrence of *bleeding of the lungs*, a dose of a teaspoonful, taken dry, often proves successful in stopping the flow of blood.

Strong brine, made by dissolving as much salt as possible in boiling water, and allowing it to cool, is an excellent application to bruises, sprains, and sores. *Frosted feet* will be found greatly relieved by being soaked in this for a quarter of an hour every evening. In weak conditions, the whole body may be advantageously sponged with this, or bathed with a solution of one pound of rock-salt in four gallons of water. The latter is about the strength of sea-water, which derives its virtues chiefly from the salt it contains. Persons who dislike bathing, or have no conveniences for it, will derive benefit by rubbing the skin of the

body with dry salt once a week. It is invigorating, and stimulates the skin very much.

For *seat worms*, an injection of strong salt-water is a sure cure.

For *putrid sore throat*, and sore throat generally, a famous gargle of Dr. Rush, of Philadelphia, was as follows:—

Take of—
Common salt, one tablespoonful.
Lemon-juice, two tablespoonsful.
Water, half a pint.
Gargle every half hour with it.

In cases of *burns* and *scalds*, fine salt sprinkled immediately over the part gives prompt relief, and often prevents blistering.

CREAM OF TARTAR.

This familiar article is medically valuable in several respects. It acts both on the bowels and the kidneys. When persons are *bilious*, the bowels bound, and the complexion somewhat yellow, a dessertspoonful of it, stirred into a pint of boiling water, cooled, and taken twice a day on an empty stomach, will relieve the symptoms in a few days. In attacks of *jaundice*, where there is fever, yellowness of the eyes and skin, and prickling of the body, a heaping tablespoonful of it should be taken three times a day until the bowels are acted upon smartly. It is a very successful remedy. In *dropsy*, half this amount, three or four times a day, will diminish the swelling.

Children who have a rough skin, muddy complexion, and are generally ailing, are often improved by the following:—

Take of—
Cream of tartar,
Flowers of sulphur, equal parts.
Give a teaspoonful in molasses every morning.

When children are slightly feverish from a commencing cold, they are often benefited by cream of tartar lemonade. To make this, pour a pint of boiling water on a tablespoonful of cream of tartar, add a few pieces of lemon-peel, and sweeten to the taste. A teacupful of this may be taken as desired.

The ground cream of tartar of the stores is very frequently adulterated with flour, chalk, whiting, etc., so that when it is possible to get it in crystals it is better to do so.

GINGER.

This is the root of a plant brought from the West Indies. When powdered, it is a pleasant condiment, and when in the root, "green ginger," as it is called, makes an excellent preserve. Medically, its virtues are toward affections of the stomach and bowels, relieving colic, diarrhœa, and indigestion, correcting impure water, and stimulating the whole system. The forms in which it is most used are *essence of ginger*, *syrup of ginger*, and *ginger beer*. The following are reliable receipts for these:—

For essence of ginger:—

Take of—
Sliced fresh ginger-root, four ounces,
Alcohol, one quart,
Let it stand for a month before using.
Dose, 10 to 60 drops on sugar.

For ginger syrup, boil four ounces of ginger-root in a quart of water four hours, adding boiling water to keep it to a quart. Then filter, and add enough white sugar to make a rich syrup by the help of heat. Bottle and keep in a cool cellar.

For ginger beer, take thirteen pounds of sugar, the juice of twelve lemons, eight ounces of bruised ginger-root, the whites of six eggs well whipped, and ten gallons of water. Mix, and boil twenty minutes, skimming carefully. Put in a cask, and bottle after ten days.

The powdered ginger of the stores is often adulterated with Indian-meal, sawdust, and other impurities. Therefore, for medical purposes, the bruised or green root should be obtained. The substance in some form should be in every household, as it often removes the temptation to use alcoholic drinks for colic, etc. A bowl of hot ginger tea, taken on going to bed, will often cure a commencing cold, and relieve irregularities in women.

LEMON-JUICE.

The employment of lemonade as a refreshing and cooling drink in hot weather and in fevers is well

known. It is best when made of a fresh, sound lemon. But when it is not convenient to carry these, *lemon syrup* may be substituted; *not*, however, that lemon syrup which is found in the stores, which is an unwholesome mixture of tartaric acid flavored with oil of lemons, but made at home after the following receipt:—

> Take of—
> Strained lemon-juice, one pint.
> White sugar, two pounds.
> Mix them, and simmer for half an hour.

It should be bottled with sound corks, and if there is any difficulty in keeping it, add a tablespoonful of brandy to each bottle.

In *scurvy* there is no better remedy than a tablespoonful of lemon-juice three or four times a day. During the war there was a great deal of scurvy in the army of the Southwest, and it is not uncommon to see its symptoms in scrofulous, ill-fed persons (see Scurvy). Some very hopeless cases of *dropsy* have been cured by eating lemons, the skin being removed, and the substance cut into small pieces and mingled with sugar. The patient commences on one daily, and gradually increases to ten or fifteen, meanwhile eating principally animal food. Obstinate *heartburn* (acidity of the stomach) is sometimes relieved very rapidly by simply sucking the juice of a lemon. Very strong lemonade can be used with advantage in *influenza* and *cold in the head*. The juice removes ink-stains and freckles from the skin. But one of the most valuable

of its uses is in *inflammatory rheumatism.* A wine-glassful of the juice, sweetened, given five or six times a day, will often work surprising cures in this painful and lingering disease.

LIME.

There are very few places where quicklime cannot be obtained; and there are a great many complaints in which it renders very important services. It is generally made by burning limestone in a kiln, but it can also be prepared from oyster and other shells. Pure or quicklime is irritating and caustic. When it is blown into the eyes in a condition of fine powder, as not unfrequently happens to those obliged to work in it, it causes violent inflammation. The proper treatment is to pour immediately a small quantity of sweet oil between the lids. The lime joins with the oil and forms a bland liniment, very soothing to the inflamed surface.

One of the most valuable uses of lime is in those very common and distressing children's complaints, *croup* and *diphtheria.* These diseases often attack suddenly and violently, and every parent should be ready to render immediate relief without waiting to send for the doctor. This can readily be done by simply having the child *breathe the vapor from slaking lime.* The directions to be observed in doing this are as follows: take a piece of unslaked lime the size of an orange and put it in a pitcher or a bowl; throw a cloth over the head of the child, large enough to cover both the head, face, and the bowl; then pour a little

hot water on the lime, and, placing the vessel underneath the cloth, tell the child to breathe freely. It gives very prompt relief, but to effect a permanent cure it must be continued, a fresh lump being slaked every half hour, until the difficulty of breathing has disappeared. The very worst cases of croup and diphtheria will generally yield almost at once to this simple means, which is always at hand even in remote settlements.

The eminent French physician, Dr. Trousseau, found great advantage in cases of *inflammatory rheumatism* from the use of a "syrup of lime." His prescription has also been used in this country by several intelligent physicians with good success. The syrup of lime is prepared as follows:—

Take of—
Quicklime, one tablespoonful.
White sugar, four tablespoonsful.
Boiling water, one quart.
Mix well, and strain when cool.
Dose, one teaspoonful every three hours.

"Lime-water" is one of the most useful articles in domestic medicine. It should be freshly prepared, as after being kept some time it loses its powers. Its preparation is simple. Take about a half pound of fresh unslaked lime, and pour upon it a gallon of hot water. Set aside the mixture for a few hours, and then pour off the clear liquor, being careful not to stir it.

It has various uses. As a gargle in croup and diphtheria, it is one of the best. Mixed with an equal

quantity of olive or linseed oil, it makes a thick oily mixture, called carron oil, which is an excellent application in *burns* and *scalds*. The lime-water alone is a soothing application to those itching eruptions called *hives*, and can be taken internally with great advantage in the same affection. Its dose is a tablespoonful, and it is best taken in milk, which conceals the taste.

Where there is that burning sensation in the stomach called *heartburn* (which is a form of dyspepsia), a dose of lime-water will give prompt relief. Indeed, it is useful in many forms of dyspepsia where this sensation is not present, and also in slight summer diarrhœas.

Its chief employment is in the bowel complaints of children. Where the child has much wind, a restless sleep, slight diarrhœa, and is fretful, very frequently the difficulty is that its stomach is sour. This condition is promptly relieved by the lime-water. It should be mingled with the child's milk in the proportion of one-quarter of lime-water to three-quarters milk, and given constantly.

MUSTARD.

This condiment, which is so universally used at meals, is hardly less popular as an article of household medicine. Every one is familiar with the mustard plaster as an application for pain. We have previously explained how it ought to be made (page 522).

For internal use, mustard is also valuable. It is the very best article with which to bring on immediate

vomiting when some suspected poisonous substance has been swallowed. For this purpose, take a large teaspoonful of ground mustard, mix it in a tumbler of warm water, and swallow it rapidly.

A tablespoonful of white mustard seeds (whole) mingled with molasses, and swallowed once a day, act gently on the bowels, and are beneficial in *dyspepsia* and constipation. Mustard wheys, made by boiling a dessertspoonful of ground mustard in a pint of milk and straining, can be usefully employed in *dropsy* in the dose of a wineglassful three times a day.

OLIVE OIL.

This is also familiarly known as sweet oil, table oil, and salad oil. It is obtained by pressure from olives. The oil is nutritious, and, when not rancid, is pleasant to the taste. In cases of *poisoning* by corroding poisons, it should be given in doses of a wineglassful every few minutes. *Cramp colic* will often yield promptly to a dose of the same size. The oil acts gently on the bowels, and is, therefore, useful in constipation. A teaspoonful of it rubbed along the spine of a very young infant is a far better means to loosen its bowels than anything given by the mouth. Several cases of *snake-bites* have been reported as benefited by giving a wineglassful of this oil every half hour, and constantly rubbing the bitten parts with it.

Many *skin diseases* are greatly benefited by anointing daily with sweet oil, and the natives of the east believe that it prevents them from taking contagious

diseases. Infants, when their skin is hot and dry, are often greatly relieved by having it gently and thoroughly rubbed over their bodies.

When a person is prostrated by attacks of gout and rheumatism, and suffers from general debility, the use of this oil, a teaspoonful three times a day, the quantity gradually increased until it begins to loosen the bowels, will produce an excellent result.

RED PEPPER.

This is also known as cayenne pepper, or capsicum. Its pungent, stimulating properties render it of much value as a medicine. In indigestions and dyspepsias, when eaten freely with the meals, it relieves the pain and sense of weight, and promotes digestion. Of late years it has been praised as one of the best remedies in *delirium tremens*, the sleeplessness and madness brought on by hard drinking. A teaspoonful of it should be mixed with molasses and swallowed at once. The same dose is also a very efficient remedy when *sea-sickness* is coming on, and much to be recommended above the brandy, etc., usually prescribed.

Red pepper tea is an excellent gargle in sore throat, especially in the following combination, which we can recommend:—

Take of—
Red pepper, one teaspoonful.
Salt, one teaspoonful.
Water and vinegar, of each half a pint.
Boil for a few minutes, then strain and cool.

A mouthful of this can be gargled every hour.

As a liniment, strong red pepper tea, or the receipt just given, is useful in rheumatic pains, stiff joints, neuralgia, etc. Sometimes a plaster of it, with Indian-meal, is very effective.

SALTPETRE, OR NITRE.

This substance is also called nitrate of potash, and is well known as one of the substances of which gunpowder is composed, and is also much employed in domestic life.

As an internal medicine it has a cooling power in feverish conditions. A teaspoonful of it (powdered) should be stirred in a pint of cold water, and two tablespoonsful of this swallowed every hour or two. It acts on the kidneys and the skin. A heaping dessertspoonful of it, boiled for a few minutes in a quart of new milk, makes a useful medicine in *gravel;* a tablespoonful of it is to be taken about every hour through the day. In *inflammatory rheumatism* it has an excellent effect, and may be taken in the same doses, but dissolved in a quart of water instead of milk, and the whole taken in small doses, frequently repeated, within twenty-four hours.

A teaspoonful of saltpetre in a tumbler of water makes an excellent gargle in *sore throat.* It should be used every hour. In attacks of *asthma* speedy relief is often found by breathing the smoke of burning paper which has previously been soaked in a strong solution of saltpetre, and then dried. In cases of

dysentery it sometimes acts very beneficially; a teaspoonful of it is to be stirred in a tumbler of water, and a tablespoonful of this given every hour.

SODA, BICARBONATE OF SODA, BAKING SODA.

This product is obtained from common salt by submitting it to a series of chemical processes unnecessary to detail. It is sold at all grocery stores for kitchen use in making "soda biscuits," bread, cleaning, etc., and there are few families who do not keep it on hand. Chemically, it is an "alkali," and one of the best for internal administration.

Hence its uses as a medicine deserve to be known to every one, as they are quite efficient. One of the most valuable is in that form of dyspepsia where there is *sourness of the stomach*, *heartburn*, or water-brash. With this symptom are usually associated a coated or very red tongue, a capricious appetite, a dry mouth, a sense of fulness over the stomach, pain after eating, and a general disagreeable feeling, and low spirits. This condition finds relief in the use of soda, and especially in a full dose taken immediately *after* meals. A teaspoon even full should be stirred in a wineglass of water and swallowed at a dose.

Children who are wakeful, restless, and cross, who scream easily, and vomit curdled and sour milk, who have movements which are thin, greenish, and sour, suffer from this form of dyspepsia. If they are fed on milk, ten grains of soda should be put in each quart of their food; if at the breast, a pinch of soda and

five or six drops of essence of peppermint should be stirred in a tablespoonful of water, of which a half teaspoonful should be given after nursing.

Gravel and *stone in the bladder* are painful and terrible complaints, which can be treated by nothing so efficacious as soda. By using daily two or three teaspoonsful dissolved in the drink, the tendency to the formation of these stones is done away with. Soap-makers' lye, which is occasionally recommended for the same purpose, acts virtually the same as soda, though it is a less agreeable remedy.

The daily use of soda should not be carried too far, as it is said by some to weaken the stomach, thin the blood, and finally to lead to a condition closely resembling scurvy.

Inflammatory rheumatism can be treated with frequent success by bicarbonate of soda. Certain mineral springs, as we have already mentioned in our article on them, contain this ingredient in large quantities, and are precious, if not almost specific, remedies in chronic rheumatism and gout. They include the famous Vichy waters of France, and those which we have called "alkaline" springs.

Baths containing soda, whether of artificial or natural water, are extensively used in *diseases of the skin*, especially those of a dry, scaly character. The water should be about the temperature of 80°, and, when made artificially, a handful of that form of soda employed in washing (familiarly called "washing soda") should be stirred into the bath.

"Soda-water," as sold in the shops, contains no

soda; but formerly it was made by dissolving forty grains of soda in a pint of the water, and impregnating it with carbonic acid gas. In this form it is a pleasant method of taking the medicine.

The dose of soda is from ten to thirty grains; but as much as an ounce daily may be taken with benefit in some cases. It should always be dissolved in an abundance of water, as otherwise it is disagreeable. Soda lozenges are kept by druggists for those who suffer from sour stomach.

SULPHUR.

This simple and abundant article is only neglected in medicine because it is cheap. Old Dr. Physick, of Philadelphia, used to say that it would be often prescribed if it cost a dollar a pound instead of a few cents! Old cases of *rheumatism* are often very much improved by sulphur baths and sulphur tea. The latter is made by breaking up a pound of roll sulphur and simmering it for half an hour. A wineglassful should be taken hot five or six times a day. The best *sulphur baths* are those which Nature provides in hot sulphur springs, but artificial ones can be prepared by stirring a handful of sulphur into a tub of warm water, or, what is better, by using the sulphur vapor-bath. The patient is stripped and seated on a cane-bottomed chair, with a thick blanket fastened below his chin and enveloping both his body and the chair. A hot brick is then placed on a dish beneath the chair, and sprinkled with flowers of sulphur. This vapor-

bath should last from a quarter to half an hour, and is an admirable remedy in old rheumatic cases and *itch*. Sulphur in this last-mentioned troublesome and disgusting complaint is the best remedy in the world. It may be applied either as a vapor-bath or in the following ointment:—

Take of—
Flowers of sulphur, one tablespoonful.
Clean lard, three tablespoonsful.
Rub well together.

The skin is first to be thoroughly washed with warm water and soft soap, and then rubbed morning and evening with this ointment. It is a sure cure.

Sulphur loosens the bowels, and one or two teaspoonsful of the flowers mingled with molasses is an effective dose for this purpose.

TAR.

There are few articles in the shop of the apothecary with more healing virtues than that common substance, tar. It can be used either externally, by the stomach, or in a state of vapor.

The value of tar on old sores, galls, cuts, and bruises is known to every farrier. It prevents flies and maggots from troubling the wound, and aids in healing. In *skin diseases*, *tar ointment* is an excellent compound. It is made by melting suet or clean lard, and adding to it at a moderate heat an equal amount

of tar. For *scald-head*, *scurf*, and old sores it has a deserved reputation.

Internally, tar is most conveniently used as *tar-water*. This is made by pouring half a gallon of boiling water on half a pint of tar. Bishop Berkeley, who lived in the last century, was cured of a troublesome dyspepsia by this, and believed it such an excellent medicine that he wrote a book in its praise. From one to two pints may be taken every day. It is advantageously used in *coughs and colds*, dyspepsia, slow diarrhœas, and general weakness.

Tar-vapor has been found of great use in *coughs*, and has even been said to have cured consumption. It can conveniently be made by placing over a common nurse-lamp a dish of water, and in this a cup containing tar. In a few minutes the air of the room will be filled with the vapor.

TURPENTINE.

Spirits of turpentine, or oil of turpentine, is obtained from fir and pine trees, and is extensively used in domestic arts. Its medical properties are also numerous.

Externally, it forms a part of some of the most effective *liniments* which we have. It reddens and irritates the skin of some persons quite violently, and it is best, therefore, to mix it with equal parts of olive oil. For sore throat, pain in the back, rheumatism, stiffness, and neuralgic points, we recommend the parts to be thoroughly rubbed with it morning and evening.

Taken internally, turpentine is one of the best means to destroy and expel *worms* in the bowels with which we are acquainted. Even tapeworms cannot withstand its action. A teaspoonful of it may be given at night, rubbed up with the yelk of an egg and sugar, and followed the next morning by a dose of salts or castor oil. In long-continued looseness of the bowels or *diarrhœa*, twenty drops on sugar three times a day will often effect a cure. Old cases of *rheumatism* are improved not only by having it rubbed on the affected parts, but by taking ten to twenty drops several times a day. It proves also very beneficial in *spitting of blood*, when it should be given in ten-drop doses every ten minutes. When the system is worn out with low fevers or dysentery, and the tongue looks dry, red, and cracked, five drops mixed with a little yelk of egg, sugar, and water, given every two hours, is an approved remedy.

Sometimes turpentine given internally causes pain and burning in passing water. When this is the case, it should be stopped, and the patient placed for some time in a warm sitz-bath.

VINEGAR.

Strong cider vinegar has long been known to possess valuable medicinal virtues. Mixed with water, and sweetened with molasses, it forms a popular temperance beverage in harvest, as we have before mentioned (page 103).

For *dysentery*, vinegar saturated with common salt

has a deserved reputation. A large tablespoonful of the mixture is to be added to four of hot water, and a tablespoonful of this is to be swallowed as hot as may be every few minutes until the whole is taken. In *poisoning* from washing-soda or potash, vinegar mixed with water should be drunk. In some cases of *inflammatory rheumatism*, when the patient is worn out or has a feeble constitution, a teaspoonful of strong vinegar taken twice a day has been found of great value.

For a gargle, and as a wash to strains, bruises, and old sores, salt and vinegar is an excellent mixture. In feverish conditions, and in the night-sweats of consumption, the whole body may be advantageously sponged with vinegar and water. When, as occasionally happens, small particles of lime get in the eye, causing severe pain and danger of inflammation, the proper remedy is to wash the eye carefully with weak vinegar and water.

The smell of burning vinegar was long supposed to prevent the contagion of fevers, but it cannot be depended upon. Very hot vinegar applied on a flannel early to a felon, boil, or swelling of the breast, will sometimes "backen" it.

Vinegar bought in the stores is often a poor stuff manufactured from oil of vitriol (sulphuric acid), whiskey, or high wines, not fit to use. It should be made from pure cider or wine.

It has sometimes been recommended to prevent persons becoming too fat; but this use is dangerous and unnecessary. Several instances have come to our knowledge where ladies

have ruined their health by this folly, and one in which consumption was brought on.

WATER.

In the article on Baths many of the effects and uses of water, hot, cold, and medicated, have been considered. But there are other important uses in medicine to which it is applied that deserve separate notice.

Sponging the body in fevers with cold water, or water mixed with vinegar, is a proceeding that should not be neglected. The whole body should be sponged about twice a day. It is extremely refreshing to the patient, and may be used with perfect safety in fevers of all kinds. The temperature of the water should be that most agreeable to the patient.

As a drink in fevers, the old custom was to prohibit water; but a wiser plan is to allow as much of it as the patient wishes.

In sunstroke, fainting, stupefaction from opium, etc., the first and best thing to be done is to dash cold water over the head, neck, and chest, after removing the clothing. It may also be poured from a bucket held about six feet above the head. This will re-establish the sensation more rapidly than any other treatment.

Cold water to the head is always called for where there is much pain, flushing of the cheeks, a hot, dry skin, a bright, glittering eye, and a wildness of expression or language.

A draft of cold water is an efficient expedient for calming the violent action of a palpitating heart.

In bleeding, whether from a cut surface, the nose, lungs, or womb, cold water is of great value.

For an external application to bruises, cuts, injuries, and wounds of all descriptions, it is not surpassed by any medicinal substance. The part should be covered by a layer of tow, cotton, lint, or old muslin, kept constantly wet with cold water. This prevents inflammation, and hastens cure.

Hot water is also a valuable agent. Internally it should generally be used at about 100° Fahr. It causes in large quantities nausea and sometimes vomiting, but is valuable by diluting the blood. In *dyspepsia* attended with a sensation of coldness at the stomach and cold hands and feet, a cupful of water taken as hot as it can be drunk affords very considerable relief.

Clothes wrung out in hot water and applied to the throat and chest often give much relief in croup, sore throat, and asthma. A warm hip-bath will frequently relieve the distressing sensations of dysentery, the itching of piles, the pain attendant on difficulty of passing water, and the irritations which sometimes arise about the genital regions.

The vapor of hot water, or, in other words, *steam*, when inhaled, is often efficient in relieving coughs, colds, sore throats, and the difficulty of breathing in asthma and croup.

The Medical Virtues of Domestic Plants.

There is a pleasant belief among many, that a wise Providence has placed within the convenient reach of all—in the common substances which the daily needs of our bodies in health gather around us, and in the plants which bud and blossom before our eyes, and which our heedless feet trample in the dust without a thought—the remedies and specific cures for all the diseases which afflict us. As a stimulant to our minds, and as a reminder that man's highest duty is to labor, these beneficent properties lie concealed until painstaking study and observation reveal them to us.

Whether we can attach full faith to this attractive theory, or whether, as most physicians say, we must recognize it true only to a very limited extent, certain it is that in our woods and fields grow many a plant and tree endowed with properties which assuage pain, shorten sickness, and hasten the return of health. Perhaps there is hardly a plant but has some such power to some at least slight extent. Vast numbers of them have been tried and recommended for one disease or another, or for the relief of this or that symptom. Many works on popular medicine make a display of a long list of such plants, and, in order to fill up their pages, introduce many which are scarce, or which have no decided merit, or which have never fairly been tested.

This is not our plan. We propose to mention comparatively but few, and those shall be common

over wide districts of country, and of well-recognized remedial powers. They shall be such as are readily recognized by most persons who live in the country, and require no special botanical knowledge to distinguish.

WHEN AND HOW TO GATHER MEDICINAL PLANTS.

Before proceeding to explain the uses of domestic plants in medicine, we must give instructions how to gather and preserve them. Everything depends on doing this properly. Unless the plant is gathered at the right season, and preserved with care, it loses many if not all its medicinal powers.

The following instructions are those which the largest dealers recommend to the professional gatherers, and may be depended upon for general accuracy.

Most medicinal *roots* are perennial (that is, the roots continue more than two years, whether the leaves continue or not), and should be gathered any time between maturity or decay of the leaves or flowers, in the summer or fall, and the vegetating of the succeeding spring. Biennial roots, or those that live but two years (like burdock and yellow dock), should be collected of the growth of one year—any time between September and the time they commence running up to seed in the following spring.

Barks should be gathered as soon after they will peel in the spring as possible, and all the moss carefully removed. It is usually best to fell the tree, and remove the moss while the bark is on the tree.

To face p. 724.

Leaves and *herbs* should be collected just before they mature, and before they begin to fade; the stems and stalks rejected, as when dry they are a hard woody substance, nearly inert.

Flowers when they first open; and

Seeds just before they are quite ripe, as they, like leaves and flowers, ripen after being gathered.

Roots should be thoroughly cleansed from dirt and foreign substances, and if large, like Indian turnip, etc., sliced.

All the above articles should be dried; the sooner the better. For the first few days it is best to expose them to the sun and air, avoiding any dew or dampness; then spread around on floor and shelves, watching them to see that they do not heat by being piled too thick, till nearly dry. Most roots require from three to six weeks to dry sufficiently to be safe.

For shipping, it is best to pack them hard in coffee-sacks or large gunnies and burlaps; the next best are good flour-barrels.

As we are writing for many who have no knowledge of the scientific classifications of the vegetable kingdom as adopted by botanists, we will divide the principal domestic plants used as drugs into two very simple and obvious classes, (1) the trees and shrubs, and (2) the herbs and roots. As a rule, the stalks and leaves of the latter class die and fall during the winter season, while the trunks of the former remain and increase from year to year.

1. DOMESTIC TREES AND SHRUBS.

These are usually of many years' growth; some evergreens, others shedding their leaves in winter.

THE AMERICAN POPLAR.

This handsome tree is known also as the "tulip-tree," and by botanists the *Liriodendron tulipifera*. It is well known in most parts of our country as a conspicuous species in our forests. The inner bark has been long used as a tonic and as a curative means in fever and ague. It is best taken in a powdered form, a heaping teaspoonful being an average dose, which may be repeated several times a day. A strong decoction, prepared by boiling the fresh bark in water, may be substituted for the powder. In both these forms it has been used with advantage in the complaints above mentioned, and also in chronic rheumatism, dyspepsia, and general debility.

BEAR-BERRY.

This is an evergreen shrub known to botanists as the *Uva ursi*. It grows in the more northern States of our Union in abundance. The leaves are the only part used in medicine. They should be collected in the autumn. A strong tea made from them is of marked value in diseases of the kidneys and bladder, where there is a deficiency or difficulty in the passage of water. Gravel, inflammation of the bladder, and

Castor Oil (p. 751).

Elder (p. 727).

To face p. 727.

difficulty in retaining the water, are improved by its use. The dose is a wineglassful of the decoction three or four times a day.

BLACK ELDER.

The elder-bush is commonly found in low, moist grounds and along fences. The larger variety seen in cultivated grounds has been introduced from England, but the properties of both are alike. The parts used medicinally are the flowers, the berries, and the inner or second bark of the branches and roots.

The ointment made by stirring the fresh flowers or the inner bark into clean melted lard and subsequently straining, enjoys a high reputation for efficacy in slight *burns*, *scalds*, and wounds, and in dressing old and obstinate sores. The late Stephen Girard, of Philadelphia, was so partial to this ointment that he used to prepare it with his own hands and keep it in the house for distribution to his friends.

The berries are somewhat laxative, and also act on the skin. They can be employed in rheumatism, gout, skin diseases, and habitual constipation with advantage, and also in scrofula. Their juice can best be preserved by mixing it with sugar, a pound to the pint, then boil and bottle, adding to each pint a wineglassful of strong brandy. The bottles should be well corked and kept in a cool place. The dose is from a dessertspoonful to a tablespoonful three times a day. This is of especial value in scrofula.

The juice of the fresh root, or a strong decoction of

it, in wineglassful doses, acts smartly on the bowels, and is used in dropsy with advantage. Sometimes it causes vomiting, and in that case should be suspended for a day or two.

BLACKBERRY.

The root of the blackberry and dewberry has a very salutary effect on many diseases of the bowels, as *diarrhœa*, *dysentery*, and the summer complaint of children. A decoction from the root is not unpleasant to the taste, and is agreeable to the stomach. It should be prepared by boiling a heaping tablespoonful of the smaller roots, or the bark of the larger, in a pint and a half of water down to a pint. Of this one to two tablespoonsful may be given to an adult three or four times a day.

The domestic preparations known as "blackberry syrup," "blackberry cordial," and "blackberry wine" are all possessed of similar medical properties, though in a less degree.

BURDOCK.

The portion of this plant which is used medicinally is its root. A strong decoction, made by adding a handful of the freshly bruised root to three pints of water, and boiling to two pints, has a decided action on the skin and moderately so upon the bowels. The dose is a pint a day. In scrofulous conditions of the system, and in obstinate skin diseases, this will sometimes bring about a cure when all other means fail.

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The juice of the mature leaf may also be given, in doses of a teaspoonful three times a day.

CLEAVERS, OR GOOSE-GRASS,

Called by botanists *Gallium aperine*, is a common annual plant in the United States. It acts decidedly upon the skin and kidneys, and has been found of value in obstinate *diseases of the skin*, and also where there is suppression of urine, and in *gravel*. It may be given in the form of decoctions, made by boiling a handful of the recent herb in a quart of water for twenty minutes, of which a tumblerful is to be taken three times a day.

DOGWOOD.

This familiar tree grows in all our forests from Maine to the Gulf of Mexico. The part which is used in medicine is the bark, especially that of the root. Taken in a strong tea or decoction, made by boiling a handful of the bark in a quart of water, cooling and straining, it will often break an attack of *fever and ague*. When the system is feeble, and the appetite poor, this preparation taken in wineglassful doses three times a day will give strength and appetite.

JUNIPER.

The juniper is probably a native of this country, as we find it growing wild in many districts. Its berries have long been famous for their power of acting upon

the kidneys and increasing the discharge of liquids from the system. They are chiefly used in *dropsy*, in *skin diseases*, and the early stages of *scrofula*. They may be given directly, rubbed up with sugar, in doses of one or two teaspoonsful three or four times a day. But it is more convenient to take a tablespoonful of them, and, having thoroughly bruised them with a hammer (taking care to break their seeds, as in them the oil is retained), pour upon them a pint of boiling water. When cool, the whole may be drunk in the course of twenty-four hours. Care should be taken that the berries used are fresh, sound, plump, and black, as when they become old they are generally worthless.

OAK-BARK.

The white and the black oak are the two species of oak most abundant in the forests of the United States. The bark of both is used in medicine, and there is not much difference in their effects. That of the white oak should be preferred, however, when it is administered internally, as it is milder and less acrid than the bark of the black oak.

The bark may be given with advantage in *fever and ague*, *obstinate chronic diarrhœa*, and in *bleeding from the lungs*. The acorns, when roasted and prepared like coffee, are believed to be a remedy in scrofula, when this disease is in its early stages. This "acorn coffee" should be taken with cream and sugar at each meal.

The more frequent use of oak-bark is as an external application. The decoction can be used with benefit

Lobelia.

Seneca Snakeroot.

Virginia Snakeroot.

Calamus.

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as a bath, particularly for children, who cannot take medicines, in cases of weakness, looseness of the bowels, scrofula, and fever and ague. Used as a gargle, it is often serviceable in sore throat, and when there is a distressing tickling in the throat, inciting to a cough; it has also been recommended as a wash in old sores and foul ulcers; or a poultice made from the powdered bark will be of equal benefit.

THE PERSIMMON.

The persimmon is familiar to all residents in the more southern States, on account of its highly prized fruit. Its medical properties also are quite well known. They reside in the fruit and in the bark. The former differs very much in taste when ripe and unripe. The puckering, astringent property of the half-ripe fruit has been found to be advantageous in dysentery and diarrhœa of long standing. When ripe, the fruit is pleasant to the taste, and is believed by some to have the power of expelling worms from the bowels. If this is so, it should be freely allowed children.

The bark is very bitter to the taste, and, used in the form of a strong tea, has been employed with success in the treatment of fever and ague and as a gargle in sore throats of a severe character.

POKE-WEED.

This plant, whose botanical name is *Phytolacca decandra*, is also known as poke-root, red weed, and

pigeon-berry. All parts of it are medicinal; but the root and the berries are the portions generally employed. The juice pressed out of the full-grown leaves and slowly dried in the sun furnishes an excellent application for ordinary *scaly tetter*, such as often affects the joints of the fingers. It should be applied every night and morning.

A strong decoction of the root is a valuable remedy for many *diseases of the skin*, especially where there is much troublesome itching. The juice of the berries, and the dried berries themselves, have long been employed in the treatment of *rheumatism*, particularly in cases of long standing. A tablespoonful of the juice is an ordinary dose, or from ten to twenty dried berries, five or six times a day. The decoction of the roots has also been found advantageous in *piles;* and an ointment prepared by mixing the powdered root or leaves with lard, and simmering ten minutes, has been found efficacious in *scalled head* and other troublesome skin diseases. Some have even claimed that the juice of the leaf can occasionally cure a cancer, but this we hold very doubtful.

SASSAFRAS.

This aromatic tree, found in all parts of our country, had formerly a much higher reputation in medicine than is now conceded to it. The parts used are the bark of the root, and the pith of the extremities of the branches. The latter is found in slender round pieces, very light and spongy. When placed in

water, it forms a ropy, clear liquid, which possesses very soothing and agreeable qualities. It is an agreeable and useful drink in dysentery and inflammation of the bladder, and, locally applied, gives great relief in inflammation of the eyes.

The bark, made into an infusion by the addition of cold water, forms a pleasantly flavored drink, and has been found of value in diseases of the skin and lingering cases of chronic rheumatism.

WHITE WALNUT.

This tree, called by botanists *Juglans cinerea*, is known in different parts of the country as the butternut, oilnut, or white walnut. The portion which is medicinal is the inner bark of the root. This furnishes one of the best mild purgatives which can be found. It was extensively used by the surgeons during the American Revolution, and has been popular with physicians ever since. It is especially valuable where there is habitual constipation of the bowels, or in dysentery and biliousness.

The best time for collecting the bark is in June. It may be made into a tea, an ounce to the quart, a wineglassful of which is a dose. A more elegant form, especially for giving to children, is a cordial, which can be made as follows: The bark is to be well broken and beaten, so as to make a soft, stringy mass, which is to be placed in an earthen vessel, closely packed down. Boiling water is then poured in, sufficient to cover the whole, and the vessel is to be

closely covered and placed on live coals for about two hours. The whole is then to be strained, and sugar enough added to the clear liquid to make a syrup. This is to be bottled, a little brandy or whiskey to be added to each bottle in order to preserve it. The dose for a child a year old is a tablespoonful, repeated till it acts smartly on the bowels.

WILD CHERRY.

This tree abounds in most parts of the United States. Its flowers are white, with an odor of bitter almonds, and the fruit is black, with a pleasant taste. Its name in pharmacy is *Prunus virginiana*. The parts used in medicine are the berries and the inner bark of the roots and branches. The former are preserved in brandy or whiskey, which extracts their virtues; the latter is dried, and taken in the form of an infusion, made by pouring a quart of *cold* water on a heaping tablespoonful of the bark broken into small pieces, and allowed to soak twenty-four hours. A wineglassful of this four times a day is an average dose. The shops also keep a "syrup of wild cherry bark," of which a teaspoonful may be taken.

The uses of wild cherry are especially marked in cases of general weakness, where there is poor digestion, lack of appetite, nervousness, and cough. In the early stages of consumption, and in the recovery from sudden and exhausting diseases, it is of marked benefit. *Coughs* and *colds* of long standing are often rapidly improved. Palpitation of the heart, and general

debility connected with disturbance of the heart, have frequently been relieved by its use.

WILLOW.

The inner bark of the willow-tree has had an extensive reputation as a remedy in *fever and ague* and similar complaints which arise from exposure to swamp-poisoning. The form in which it is usually taken is that of a strong decoction. During the last war, experiments with it were conducted on a large scale in the armies both North and South. It was found to exert a decided power, but by no means equal to quinine.

2. DOMESTIC HERBS AND PLANTS.

The majority of these have a soft stalk, which dies down in the winters of the north temperate zone, the plant being either propagated by a seed the following spring, or else sending fresh shoots from its still living root.

Of the very many species which have been extolled for their medicinal virtues, we have selected only such as by their wide distribution and long-tried use have acquired a permanent and well-recognized value, and can readily be obtained in nearly all parts of our country.

CALAMUS.

Calamus, or sweet flag, abounds in low, wet, and swampy places, and is well known by its pungent,

aromatic taste. It is a very convenient and useful article in domestic medicine, especially well adapted to relieve pain or uneasiness of the stomach or bowels arising from flatulence and where there is weakness of those organs. Children do not object to its taste, and they will readily take it in the form of a tea, sweetened, or scraped and mingled with a little sugar. We know a physician of wide experience who prefers it to any other substance in the treatment of colicky infants.

DANDELION.

In pharmacy, this common plant is known as *Taraxacum*, and it is justly esteemed one of the most useful domestic contributions to the materia medica. The organs on which it exerts the most decided influence are the liver and the kidneys. Hence it is of service in *jaundice*, *biliousness*, and chronic inflammation of the liver; and also in *dropsy* and *inflammation of the bladder*. In habitual *constipation* and in *coughs*, which are connected with a torpid liver, it also deserves a trial.

The most efficacious part of the plant is the root, which should be collected in July, August, or September, and used, if possible, in its fresh state, as it loses somewhat on drying. A strong infusion may be drunk freely, or the root may be dried and mixed with coffee, though this lessens its strength. A "fluid extract" of it is sold in the shops, which, if carefully prepared, acts well.

FLAXSEED.

Linseed, or flaxseed, is so familiar to every one, that it needs no description. Hardly a housekeeper but professes to understand how to make flaxseed tea and a flaxseed poultice. But it is our experience that few of them really do. To make the tea, instead of throwing the seeds into a vessel of water and boiling for a given time, they should be placed in a small linen bag, and suspended in the fluid by means of a string. The vessel should be perfectly clean, and covered during the process. Three tablespoonsful of seeds will be enough for a quart of water, and the latter should be boiled twenty minutes. A few slices of lemon should be added to give it a flavor.

Flaxseed tea is useful in coughs and colds, in disorders of the bowels, kidneys, and bladder, and generally where we wish to administer soothing and nourishing drink.

The poultice should be made by stirring very gradually flaxseed-meal into boiling water, until it is the proper thickness. In applying it, a little sweet oil or lard may be added to prevent it drying and adhering to the skin, and also to render it more soft and soothing (see page 519).

FLEABANE, OR SCABIOUS.

The botanical name of this plant is *Erigeron*. Several species of it abound in the Middle and Northern States, possessing similar remedial powers. These

are chiefly directed to exciting the action of the kidneys and skin. Hence the herb is useful in *dropsy*, in *gravel*, after an attack of *pleurisy*, etc. A pint of the tea, drawn from an ounce of the herb, may be taken every day. The oil of the plant has also been found useful, in doses of five drops every two hours, to control *flooding;* but it must be administered with caution.

GARLIC.

The remedial powers of this vegetable have been known from the most ancient times, and are still recognized. One of the oldest of its uses is to the spine of young children affected with *hooping-cough*. The fresh bulb is cut in half, and the cut surface rubbed thoroughly up and down the spine. A syrup of garlic, made by adding white sugar to the juice and gently simmering the mixture, is often beneficial in hard *coughs*, *colds*, and to old *asthmatics*. For coughs in children it is particularly well adapted, and it also has the power of expelling *worms* from the bowels, and is often used for this purpose.

The external uses of garlic are numerous. Bruised and applied to the feet, it acts very beneficially in disorders of the head, and in children who are feverish, restless, and with a tendency to wandering of the mind. A few bulbs bruised with a little hot vinegar, and laid over the bladder, will readily excite a discharge of urine in young children and also in adults. A bulb cut in two pieces, and the fresh surface applied to a spot *stung* by a wasp, bee, or

Foxglove (p. 752).

To face p. 739.

Hops (p. 739).

mosquito, will promptly allay the irritation and abate the pain. Swellings and slow tumors are sometimes readily dispersed by rubbing them frequently with a sliced bulb, and the same treatment has been recommended to promote the growth of the hair. The offensive smell is the only drawback to its use.

HOPS.

The botanical name of this plant is *Humulus lupulus*. From ancient times it has been known to possess soothing and sleep-producing qualities. A cup of strong hop tea insures a night's rest, and some have found a hop pillow to exert the same effect. An old physician informed us that in the severe pain of carbuncle in old people he had found nothing more effective than the pollen of hops—the dust which falls off when they are shaken—mingled with syrup. The dose of the pollen is a teaspoonful.

As a local application to a bruise, a sprain, an inflamed joint, or the mumps, a *hop poultice* will be found exceedingly grateful. To make it, stir the hops in boiling water, well salted, thicken with a handful of corn-meal, spread between two layers of thin muslin, and apply while hot.

HORSERADISH.

Used extensively as a condiment, this vegetable has curative properties also, which are worthy of notice. The green leaf as taken from the garden and

soaked in hot vinegar or water, will, when applied to the skin, quickly redden and sometimes blister it. In cases of hoarseness, a syrup prepared by boiling the fresh root, straining, and adding sufficient sugar, will be found of advantage. It should be slowly swallowed in the quantity of one or two teaspoonsful, repeated as occasion demands.

The infusion of the root may also be given with advantage in *dropsy*, old cases of *rheumatism*, and in *palsy*.

LETTUCE.

The common garden lettuce yields a useful medicinal substance in its juice. It is obtained by wounding the white, solid, central portion of the mature plant. A milky juice flows out, which thickens and congeals after exposure to the air and sun. Its taste is bitter and its color a dark brown. The best is obtained when the plant is in flower. It is called *Lactucarium*.

Its properties are similar to those of opium, without the unpleasant after-effects of the latter drug. It soothes the nerves, and induces a quiet and profound sleep. A piece about the size of a buckshot is an ordinary dose. For those who cannot take it in this form, it may be powdered and mixed with sugar and water, and flavored with ginger. Some families prepare it for domestic use, and employ it in preference to all other drugs to induce sleep.

LOBELIA.

This very common plant, known also as Indian tobacco, has achieved a popularity as a domestic remedy which it is far from deserving. By a certain class of practitioners it has been vaunted as a cure-all, and recommended for almost every complaint. Consequently it has done much more harm than good. As it is violent in its action, and fatally poisonous in overdoses, there have been numerous instances where death or a long illness has been directly traced to its incautious employment.

Its chief action is to nauseate and cause vomiting, and to stupefy the brain. The diseases in which it can be employed with benefit are *asthma*, *long-standing coughs*, *lockjaw*, and *dropsy*. The safest method to administer it, for those not physicians, is to make a tea by pouring a quart of boiling water on the leaves and stalks, and of this give a teaspoonful every quarter of an hour until sickness of the stomach is produced.

PARSLEY.

Parsley is cultivated in most kitchen-gardens for culinary purposes. It possesses also some well-marked medical virtues. The root, taken in the form of a strong tea or infusion, acts gently upon the bowels and the kidneys, and is of service in *dropsy* and diseases of the bladder and kidneys. The eminent Professor Chapman, of Philadelphia, was accustomed to recommend it highly in these complaints.

The juice of the fresh herb, and the seeds, have been successfully employed in fever and ague, and other complaints arising from exposure to swamp-poison. Where persons are not able to obtain quinine, these furnish useful substitutes.

PEPPERMINT.

Peppermint and spearmint are alike in their properties. They are among the most useful domestic plants which are found, and have a well-deserved popular reputation. They allay sickness of the stomach, remove colicky pains, drive out wind, and cover the taste of unpleasant medicines. The fresh herb, bruised and applied to the stomach, often allays sick stomach, and is useful in the cholera of children. The virtues of the plant reside in an oil. This can be bought separately. Its dose is two or three drops mingled with water and sugar. As an external application, it is of great efficacy in curing *neuralgia;* a little of it being smeared over the surface where the pain is felt.

The essence of peppermint commonly sold in the shops is made by dissolving this oil in alcohol. It is the most convenient form to use the mint, and may be given in doses of ten or twenty drops on a lump of sugar.

PODOPHYLLUM.

The mandrake, May-apple, or hog-apple, called by botanists *Podophyllum*, has recently grown into considerable favor as a medicine. The dried root of the

plant is used, which has a purging or cathartic action on the bowels, not attended with much griping. The dose of the root when powdered is about as much as will fill a teaspoon; or it can be used in the form of an infusion, an ounce to the quart, a small wineglassful of which can be taken until it operates. Some persons are very much more readily affected by it than others so due caution must be exercised.

The complaints in which it is held to be most efficacious are those which arise from a torpid condition of the liver, as it is supposed to be peculiarly efficacious in removing the bile from the system.

SAGE.

In ancient times, sage was very highly esteemed for its healing virtues. One of the old writers puts the question, "Why should a man die when he has sage in his garden?" But modern experience has not at all borne out this favorable opinion, and now we do not prize this plant nearly so much.

Nevertheless, it has some properties which deserve to be mentioned. It is an excellent condiment to articles of diet, warming and strengthening the stomach. Sage tea is a valuable remedy for children who suffer from wind, and, taken cold just before retiring, has a preventive influence on night-sweats. As a gargle in sore throat, it is often and beneficially employed, and, drawn mild, is a pleasant and refreshing drink in feverish conditions.

SENEKA SNAKEROOT.

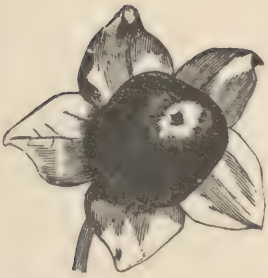
There are several different plants known as "snake-root." That which we consider here is called by botanists *Polygala senega.* It is an annual plant, from nine inches to a foot in height, with small white flowers. It grows wild in all parts of the United States, and is collected for sale in the South and West.

Some have recommended it as a cure for the bite of the rattlesnake, and hence it derived its name. But it cannot be depended upon to protect from this venomous serpent. The most valuable property it possesses is as a cure for *coughs* and *colds*, especially those of long standing. A handful of the root, and a handful of liquorice-root, should be boiled together in half a gallon of water for half an hour and then strained. A wineglassful of this three or four times a day will often act in a very satisfactory manner. Where there is a loss of voice and *hoarseness*, this may be used as a gargle.

Some physicians recommend it to bring back the monthly sickness in young girls. For this purpose a strong tea of it should be drunk, to the extent of a pint in the twenty-four hours, for several days prior to the expected discharge.

THORN-APPLE.

This plant, *Stramonium*, is more familiarly known as the Jimson-weed or Jamestown-weed. It grows three or four feet in height, and the whole plant has an



Belladonna Berry
(p. 749).

Thorn-Apple (p. 744).

Belladonna
(p. 749).

Mustard (p. 710).

Fleabane (p. 737).

To face p. 744.

unpleasant fetid odor. All parts of it are poisonous, and a number of cases are on record of children and families who have been poisoned by eating the berries, and by taking the leaves in mistake for greens.

In domestic medicine the plant should not be given internally, on account of the dangerous consequences which might result. But its most efficient properties can be employed without having recourse to this method of administration.

One of its most valuable uses is in *asthma*. To prepare the roots for this use, they are dried, cut into pieces, and beaten so as to loosen their texture. The dried leaves answer the same purpose. They are smoked by means of a common tobacco-pipe when the attack of asthma comes on. They have also been used in the shape of cigars. Thorn-apple is sometimes of service in old coughs.

Externally, an ointment made by simmering the leaves in clean lard and then straining has been advantageously used in painful *sores*, *swelling of the breasts*, and *piles*.

TANSY.

Although this herb is now so abundant in this country, it was originally introduced from Europe. Its odor is strong and peculiar, the taste bitter and to many unpleasant. Its principal value in medicine is as a vermifuge. A strong tea prepared from the seeds can be administered in the same manner as wormseed. The tea is also an excellent bitter tonic in cases of debility.

The oil of tansy is sometimes used to bring back suppressed periods, but for this purpose it is entirely inefficient, and, as it is poisonous, it should never be taken. Several deaths from doses of from one to four teaspoonsful have been recorded.

VIRGINIA SNAKEROOT.

This variety of snakeroot is readily distinguished from that which we have already described as *Seneka snakeroot*. The root of the latter is grayish, and is in single pieces often of the thickness of the little finger, with but few branches, and these of considerable size. The Virginia snakeroot, on the other hand, has a great number of very small fibres and rootlets, not thicker than a thread or small twine, which branch out from a small knob, and are brown in color.

A strong tea of the Virginia snakeroot is useful as a gargle in sore throat, and to bring out the eruption in scarlet fever and measles. When warm, it acts on the skin, promoting perspiration, and can be given with advantage at the outset of a *cold*, and in old cases of *rheumatism*. When taken cold, it is a gentle tonic, useful in the convalescence from fevers, and has been recommended in fever and ague.

WORMSEED.

Wormseed is the product of the common domestic plant which goes by that name, and is also called the "Jerusalem oak;" by botanists, *Chenopodium*. In

Maryland and elsewhere it is cultivated as an article of commerce, and an oil is distilled from the seeds.

As its name denotes, the peculiar virtue of the plant is its power to expel *worms from the bowels*. This it does efficiently. The most convenient method of giving it to children is to powder about a teaspoonful of the seeds, and mix them with a sufficient quantity of molasses. A wineglassful of the decoction prepared by boiling an ounce of the fresh leaves in a pint of milk, with the addition of a little calamus or orange-peel to conceal the taste, is sometimes substituted in domestic practice for the ordinary dose of the seeds. Either dose should be repeated morning and evening for several days, and then followed by a full dose of castor oil or other purge.

The more Important Chemical and Foreign Drugs.

The crowded shelves of the drug stores present such an array of unknown names and mysterious substances, that the novice may well despair of being able to make use of them by any brief course of study. But, in truth, most of these articles are of rare or equivocal value, and a score or two of bottles contain substances worth more than the whole remainder of the stock, for practical purposes.

The names of the greater number of the most highly esteemed drugs are already familiar to every reader, and all that he requires is to fix in his memory their

special applications, and the quantities or doses in which they should be administered.

They are derived from two sources. Either they are vegetable products obtained from plants of tropical or foreign growth, or they are derived from the inorganic elements in some of their chemical combinations.

For the sake of convenience in arrangement, and as such a division will aid in retaining them in the memory, we will classify them under the headings of "vegetable drugs," and "mineral and chemical drugs."

1. VEGETABLE DRUGS.

Most of these are obtained in the tropical regions of the earth.

ALOES.

This drug is obtained from the leaves of an herb growing in the West Indies and other tropical countries. The inferior varieties are known as "horse aloes," being only used in veterinary medicine. The best is of a reddish-brown color, with a bitter taste and strong fragrant odor. When powdered, it has a beautiful golden-yellow hue.

In small doses aloes is a tonic to the stomach, bowels, and liver, and is of especial value in habitual constipation. In larger doses it is a stimulating purgative. The dose is from two to twenty grains;

ALOE (p. 748).

ALOE (p. 748).

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on account of its bitterness, it is most easily taken in the form of a pill.

ASSAFŒTIDA.

This is the gum of a large plant found in Persia and the adjacent countries. It comes in lumps of different sizes, brownish-yellow in color, and possessing the powerful, garlicky, disagreeable odor which is never forgotten by one who has been obliged to swallow the substance. The taste is bitter and unpalatable, but its medical virtues are unquestioned. In nervous diseases of females, some forms of convulsions, in wind colic, especially in elderly people and children, and hooping-cough, it is very efficacious. The dose of the powder is from five to ten grains, but often we can derive the effects of the medicine by the more agreeable method of using it externally, as a plaster. The powder can be mixed with lead plaster and wax, and applied over the stomach or chest.

THE DEADLY NIGHTSHADE.

This beautiful plant is called by botanists *Belladonna*, beautiful woman, the name being derived, it is said, from an Italian cosmetic into which it entered largely. It is a native of Europe, but grows wild in many parts of the United States.

The ominous name which it bears is justly given it on account of its poisonous qualities, which are

marked, and consequently the utmost caution must be exercised in its employment for medical purposes.

It is used in the form of an ointment to relieve the pain of *neuralgia*, and to disperse the cold *swellings* which characterize various inflammatory diseases of a chronic nature. In the latter stages of *hooping-cough*, small doses are occasionally employed with good results. Its most valuable property, however, consists in its power as an *antidote to opium*. This will be spoken of more at length, as well as the antidotes to the herb itself, in the section on Poisons and their Antidotes. The powerful poison, atropia, is the active principle of belladonna.

The dose of the powdered leaves is one grain twice a day; of the extract or juice, one-fourth of a grain. We do not recommend, however, the employment of such a dangerous remedy, except where a physician has been consulted.

CAMPHOR.

Camphor is a product obtained from a tree which grows in China, Japan, and other portions of eastern Asia. It is a popular drug for both external and internal use, but must be employed with caution, as an overdose of it has been known to prove fatally poisonous.

For external use, it is usually dissolved in alcohol or spirits, but may also be applied in a powder. This latter form is valuable in some skin diseases attended with violent itching. It may also be sprinkled on

CINNAMON (p. 751).

PEPPER.

To face p. 751.

poultices and plasters. In rheumatism, enlarged joints, bruises, and sprains, spirits of camphor are of decided value, either alone or with some laudanum.

Internally, camphor is found in most of the popular remedies for colic and diarrhœa. Half a teaspoonful of the spirits or tincture is an average dose.

CASTOR OIL.

The seeds of the *Palma Christi*, an annual plant extensively cultivated in all parts of the world, yield castor oil. It is a thick fluid, without color when pure, and with a mild nauseous taste. As a mild and efficient laxative it has no equal, and is especially useful where the object is to empty the bowels without causing griping or irritation. What is known as the "cold drawn" or expressed oil is the best.

The chief objection to its use is its unpleasant taste. This can be concealed in several ways. One of the best is to take the oil in the froth of porter. Strong coffee, and essence of peppermint, also hide its flavor very successfully. In administering it to children and women, these precautions should not be disregarded. The dose for children is from a teaspoonful to a tablespoonful; for adults, one or two tablespoonsful.

CINNAMON.

Cinnamon is the inner bark of a tree which grows in Ceylon and other portions of the East Indies. It is generally used as a spice or condiment in food, but

also possesses medicinal properties which deserve to be known.

In colic, vomiting, diarrhœa, and similar disorders of the stomach and bowels, it is a grateful and efficient remedy. A drop of the oil of cinnamon introduced into a decayed tooth occasionally will arrest the *tooth-ache*. Added to other medicines, and to articles of diet for the sick, it improves their taste, and gives a gentle stimulant to the stomach.

FOXGLOVE.

The botanical name of this plant is the *Digitalis purpurea*, and although a native of Europe, it is frequently cultivated in gardens in this country. In many respects it is a valuable drug, but it must be employed with caution, as it is poisonous in large doses.

In *diseases of the heart* it is a potent remedy, being of value when there is much palpitation and weakness of that organ. Its effects on the kidneys are quite marked, bringing about promptly a flow of urine. Hence it is esteemed in cases of *dropsy*, and absence of action of the bladder, or suppression of urine. In many cases where there is a long-continued feverish action and considerable nervousness and sleeplessness, small doses of digitalis repeated for a number of days bring about decided relief.

The dose of the powdered leaves is one grain; a drachm of the leaves to a quart of boiling water makes

a tea which may be taken in doses of three or four teaspoonsful.

JALAP.

The root of a Mexican plant, long known to the aborigines, furnishes jalap. The powder of the root is of a pale yellow color, and has a sweetish taste and a peculiar heavy odor.

For many years this powder in from ten to twenty grain doses was a very popular purgative in the West and South, and there are few old residents there who have not swallowed their share of "calomel and jalap." Of late years this active mixture is less called for. Jalap is certainly a safe and efficacious purgative, especially useful in dropsy, and when it is desired to act thoroughly on the system.

IPECAC.

The plant which furnishes the ipecacuanha root is a native of Brazil, and has long been known to the Indians there as possessing important remedial powers. Few drugs are more valuable, and it can be used with advantage in a great variety of diseases. In large doses (twenty grains) it is a mild, safe, and certain emetic; in smaller ones (one or two grains) it acts on the lungs and skin, promoting perspiration; and in still smaller doses (one-sixth to one-eighth of a grain) it is a valued tonic. Large doses of it (thirty to forty grains) have been used with marked success in dysentery, and in less quantities it forms a part of

most cough mixtures. A few grains of it taken at the outset of a cold will frequently check it entirely. One of its most convenient forms is that of syrup of ipecac. It is chiefly applicable to children. The dose as an emetic is half a teaspoonful; for a cough, five drops; for adults, three times these quantities.

OPIUM.

There is probably not another drug which has so many and valuable applications in medicine as opium. It is the juice of the unripe seed-cups of the *Poppy*, a plant originally a native of Persia, but now growing wild or extensively cultivated in this country and Europe. It is from two to five feet in height, with large white or violet-colored flowers.

Opium comes in dark-brownish masses of various sizes, with a strong pungent odor and a bitter taste. When it is dissolved in alcohol or strong spirits it forms *laudanum*, or tincture of opium; and *morphine* or morphia is the active principle, separated from the gum, and purified; it is about four times as strong as the opium itself.

In small doses this substance is a stimulant, increasing the heat of the body, and producing a peculiar exhilaration of the mind akin to intoxication. The brain becomes active, is crowded with pleasing ideas, and a sensation of comfort pervades the system. These effects, however, soon subside, and are followed by mental depression and languor, drowsiness, and sleep. On awakening, there is a sense of fulness and

often pain in the head, sickness of the stomach, loss of appetite, and unfitness for exertion. We have already referred (see page 114) to the vice of opium-eating or laudanum-drinking, and its ruinous effects on body and mind, so we shall here confine ourselves to its employment as a medicine.

This must always be commenced with caution. Some persons are peculiarly sensitive to the effects of opium, and others cannot take it at all without suffering from a painful excitement and a prostrating reaction. Especially with children should the utmost care be used, because they are always very easily overcome by even small doses.

As a general rule, opium may be resorted to where the object is to relieve pain, soothe nervous irritation, or procure sleep. In diarrhœa, dysentery, and excessive action of the bowels, it stops the purging and quickly effects a cure. At the outset of a severe cold in the head, a full dose will almost certainly check it completely. In neuralgia, rheumatism, and gout it is constantly employed. In fact, there is hardly a disease which does not occasionally present symptoms demanding its use. But in affections of the brain, during pregnancy, and in infants, it should be avoided unless imperatively called for.

The average dose of opium for an adult is one grain either in pill or powder; children from five to ten years must not take more than a quarter of this amount; and those under five, not more than one-tenth as much. Twenty drops of laudanum equal in strength one grain of opium, and may be administered

accordingly. The "deodorized tincture of opium" is an excellent preparation, free from certain noxious ingredients in laudanum and in the crude drug. It is of the same strength as laudanum. "Paregoric elixir" is a popular combination of opium, camphor, oil of anise, honey, and alcohol. Each tablespoonful contains one grain of opium, and equals therefore twenty drops of laudanum. It is much used to allay troublesome coughs, and to relieve nausea, colic, and slight diarrhœas. The dose for an adult is one to two teaspoonsful; for an infant, five to twenty drops. "Dover's powder," frequently used at the outset of colds, contains one-tenth part of opium; dose ten grains.

The poisonous effects of opium, and the remedies to be used to combat them, will be mentioned hereafter.

PERUVIAN BARK AND QUININE.

Peruvian bark is obtained from the cinchona-tree, a native of the Andes in South America. The different varieties are known in commerce as Red bark, Yellow bark, etc. The active ingredient of the bark is the well-known substance *quinine*, which is at present one of the most extensively used articles in the materia medica. In appearance, it is a light, white powder, and is now employed almost invariably in preference to the Peruvian bark itself.

In small doses (one to three grains) quinine improves the appetite and promotes the digestive powers, without producing any other marked effects on the

Garlic (p. 738).

Cinchona (p. 756).

To face p. 756.

system. In larger or long-continued doses it causes headache, deafness, ringing in the ears, and similar symptoms, a condition known as "quininism." As a tonic it is useful in all cases of debility where there is no tendency to inflammation or bleeding.

But its chief value is to break up fevers caused by swamp-poison, such as fever and ague, breakbone fever, remittent fever, etc. It is best to give it in full doses (ten to twenty grains) during the intermission; but, if necessary, it may be given at any stage of the disease with safety, and sometimes with advantage. In the intermittent fevers of the Southern Sates it is very common to rely on one large dose given shortly before the chill comes on; but it is wiser to resort to moderate doses (five grains) more frequently repeated. It also possesses great powers as a preventive against malarial diseases, as we have previously stated. In neuralgia and rheumatism it is also often given with manifest advantage.

Of the numerous preparations of this drug we may mention "Huxham's tincture of bark" (dose, one to four teaspoonsful) as an excellent tonic cordial. To conceal the taste of quinine, powdered liquorice is one of the best additions.

RHUBARB.

The rhubarb which is used as a drug is the root of a species of the plant which is cultivated in Asia and Europe. The best is of a bright yellow color, with a slightly aromatic odor.

It is a deservedly popular medicine, chiefly taken to act upon the bowels, which it does in a mild and efficient manner. The aromatic syrup of rhubarb is one of its most agreeable forms, especially for children (dose, a teaspoonful for an infant; a tablespoonful for an adult). In the form of a powder, five to twenty grains may be taken at once. Many persons troubled with wind on the stomach, and with a tendency to constipation, find relief by chewing a little rhubarb after meals. A piece can be carried in the pocket for the purpose.

SENNA.

Senna is the leaves of a small tree which grows in Arabia and northern Africa. It has a faint, sickly odor, with a slightly bitter taste, and affords a greenish powder. It is a sure and safe purgative of moderate power, but inclined to cause some griping in the bowels. For that reason it is better to combine it with some aromatic substance and a saline laxative. The favorite mixture, "salts and senna," is a good one, and acts very well where a decided purgative is required.

The most pleasant form to take the drug is that known as the "confection of senna," an excellent laxative, without unpleasant flavor, and well adapted to the costiveness of pregnant women. The dose is about two teaspoonsful.

2. MINERAL AND CHEMICAL DRUGS.

These may be either natural products, or prepared in the laboratory of the chemist.

BROMIDE OF POTASSIUM.

The chemical product which bears this name is a white salt with a pungent, saline taste, readily dissolving in water.

Its most important action on the system is of a soothing and quieting character, diminishing nervous excitement, and producing a quiet, refreshing sleep. Where the want of sleep arises from mental anxiety rather than physical suffering, it is a remedy of great power and happy effect. Those headaches which result from excessive mental strain, and from over-indulgence in alcohol, yield to it readily. Long continued and in full doses, it is really the only remedy which will cure *epilepsy*. In the convulsions of children, and in hooping-cough, its influence is likewise beneficial.

One of its most curious properties is its effect on the sexual powers, diminishing their function in a remarkable degree. Hence it is of peculiar service in some nervous diseases of youth, which take their rise in premature and undue excitements of that character.

Unlike most other sleep-compelling remedies, there is little or no danger in its administration, as even in overdoses its results are not fatal. The usual dose is twenty or thirty grains (about a half teaspoonful)

dissolved in water. This may be repeated hourly until sleep is obtained, or the symptoms disappear. For a child under ten, the fourth of that amount will be ample.

CALOMEL.

Calomel is one of the forms of the mineral mercury, or quicksilver. It is a white, heavy powder, without smell or taste.

Probably no drug in the whole catalogue has experienced more violent changes in popular favor than this one. In the early settlement of the Western and Southern States it was almost the only drug used "to act on the liver," and at the same period it was quite as much in vogue in the Eastern States and in England. In many instances it was used carelessly and in excessive quantities, leaving behind it a state of mercurial poisoning, which the patient did not recover from for months and years, if ever. So much was said of this abuse of its potent properties, that patients became afraid to take it, and physicians hesitated to administer it. The surgeon-general of the army struck it from the medical supply list, and quacks made a point of assuring the public that they dealt exclusively in vegetable remedies.

Both these extremes have now passed away, and although we recognize the necessity of using calomel with much prudence, we also acknowledge that at times it is the very best remedy that can be chosen. In doses of five to ten grains it is an efficient purga-

tive, relieving that sense of dulness and languor known as "biliousness," and acting promptly on the liver. Certain chronic skin diseases and digestive disorders of long standing are much benefited by its administration in very small daily doses (one-fourth to one-half of a grain) long continued. Sprinkled on wounds in which maggots have effected lodgement, it will rapidly expel them; and for the destruction of those disgusting parasites known as "crab lice" it is almost the only substance which is effective.

CARBOLIC ACID.

This substance is obtained from coal-tar. As usually met with, it is a colorless oily-looking fluid, of a slight tarry and aromatic odor, resembling that of coal-tar, with a sharp, burning taste.

Its introduction into the materia medica is comparatively recent, but it possesses so many valuable properties that the amount of it used has vastly increased within a few years. Its powers as a disinfectant are very marked, and have been referred to by us in the earlier pages of this work.

In domestic practice, its employment should be confined to disinfecting purposes, and to external applications, as it is an active and dangerous remedy internally. A small teaspoonful rubbed up with two tablespoonsful of clean lard makes an excellent ointment for unhealthy wounds, old sores, and ulcers, and will also very soon cure the *itch*, *scalled head*, and many obstinate skin diseases. An equally beneficial

wash or lotion may be made by adding a tablespoonful of the acid and an equal quantity of alcohol to a pint of pure water. This destroys parasites, as lice, fleas, etc., at once, and can be applied to ulcers, etc., with the best success.

CHLORAL.

One of the most recent discoveries of importance in materia medica is the drug termed chloral. For many years it was familiar to the chemist, but only lately its power to soothe and to produce sleep has become generally appreciated.

In appearance it is a white salt, possessing a sharp, burning taste. On exposure to the air, it undergoes changes which deteriorate its quality, and it also loses some of its powers when dissolved in water for any long time. Hence it is well to preserve it in a closely stopped bottle, and dissolve it as required.

With most persons it acts very pleasantly, removing nervous excitement, calming the mind, and producing undisturbed and refreshing slumber. It does not dull the sense of pain to the extent that opium does, but it has not the unpleasant after-effects which so frequently follow the use of the latter drug. We have found exceptional persons who, however, found it impossible to take chloral without experiencing nausea and headache the next day.

The drug is not to be carelessly employed, as quite a number of deaths, both of children and adults, have been reported from inordinate doses. With grown

persons, ten-grain doses are sufficient to begin with, to be increased to fifteen or twenty; and for children under ten, a grain for each year of the age is a safe allowance.

CHLORATE OF POTASH.

A somewhat complicated chemical process is required to prepare this substance. It is in appearance a white salt, without odor, and with a cool taste not unlike saltpetre.

The special value which it has in medicine is in the treatment of *sore throat*, *scarlet fever*, *diphtheria*, and all forms of *sore mouth*. A teaspoonful dissolved in a pint of water should be at hand in all these diseases, and should be employed every hour or two both as a gargle and also as a daily drink. No more generally efficacious mixture can be found in these cases.

IRON.

This most abundant and familiar metal is found in the blood, and is an important constituent of the human system. Certain diseases and impaired conditions of the health are found uniformly associated with a deficiency of it, and naturally enough, therefore, its administration as a remedy was suggested by this fact. But long before this was known, experience had adopted it as one of the most efficient *tonics* with which we are acquainted.

Iron rarely occurs pure in nature, but generally as

an ore. Many mineral waters contain it in small quantities. They are called *chalybeate* or *ferruginous* waters. There are also a large variety of combinations in which it is prescribed.

Under its judicious use the appetite is increased, the digestion improved, the pulse strengthened, the color heightened, and the general health augmented.

The simplest forms in which it is employed are *iron filings* and *iron rust.* A simple and excellent tonic powder can be prepared by mingling equal parts of one of these and ginger, ten grains of which may be taken three times daily in a little sweetened water. For domestic practice, a tablespoonful of the iron scales which collect around the blacksmith's anvil may be placed in a gallon of hard cider, and a small wineglassful taken twice or thrice daily.

MAGNESIA.

The substance called "magnesia," or "calcined magnesia," is a light white powder, with little taste and no odor, not soluble in water. It is a mild laxative, suitable to children, and in irritable states of the stomach. It is most readily taken stirred up with milk. The dose is a teaspoonful. For sour stomach and heartburn, one-fourth of this amount will be found a useful palliative.

SUGAR OF LEAD.

The proper name for this is "acetate of lead." It is a white powder of a sweetish flavor, looking and tasting not altogether unlike some kinds of white sugar. It may be made by exposing thin sheets of lead to the vapor of vinegar.

In small doses it soothes the system, and tends to constipate the bowels. Consequently it is useful in checking diarrhœas, dysentery, and other discharges, and in arresting bleeding at the lungs or stomach. The dose internally is one or two grains.

Externally, a solution of sugar of lead, about a teaspoonful to a quart of water, forms a soothing application to an inflamed surface, as after a sprain, blow, or bruise. A good wash for inflamed eyes can be made about the same strength. And chilblains and scalled head have been materially improved by applying an ointment made by rubbing up ten grains of the acetate in a teaspoonful of clean lard.

SULPHATE OF MAGNESIA, OR EPSOM SALTS.

This salt is found in sea-water and in many mineral waters. Originally it was obtained by evaporating the waters of a mineral spring near Epsom in England, and hence the common name, "Epsom salts." It occurs in small transparent crystals, without odor, but of a bitter, salty flavor.

In moderate doses (a tablespoonful), it is a mild and certain purgative, producing copious watery

passages. The most agreeable method to take it is in the form of the natural mineral-waters, which contain it in solution, as, for example, the Bedford Spring water of Pennsylvania, or the Congress water of Saratoga.

CHAPTER V.

STANDARD DOMESTIC REMEDIES.

The importance of reliable family medicines—The dangers and uncertainties of secret and patent medicines—How the legitimate demand for carefully selected domestic remedies may be met—The principles which should govern their selection; Efficacy of the preparation; Absence of dangerous properties; Avoidance of unpleasant taste; A convenient, compact, and portable form—The family anodyne recommended—The astringent—The purgative—The emetic—The expectorant—The stimulant—The tonic—The febrifuge—The diuretic—The antiperiodic—The vermifuge—The salve—The ointment for itch—The alterative.

IN the list, in the preceding chapter, of drugs and other substances of medicinal virtue, will be found resources near at hand, and of undoubted efficacy for the treatment of the large majority of diseases to which persons are exposed in this country. But we are free to confess that we have not included in this list some of the drugs most powerful in curing disease, for the very sufficient reasons that they require a special knowledge to prepare and administer them, and that without this knowledge they are dangerous or useless. For it is well known that some of the most efficacious remedies are also active and subtle poisons, or else wholly inert unless properly prepared.

Those who have taken an interest in the subject have fully appreciated how unfortunate it is that persons who are thrown upon their own resources in treating sick friends and neighbors must be deprived of the most

valuable remedies known to medicine, because they cannot safely be used. Intelligent physicians have long been convinced that it is on this account, more than any other, that injurious secret nostrums, under the name of patent medicines, have such an extensive sale, to the manifest disadvantage both of professional men and the public. Liberal and thoughtful medical men have for many years past urged that some plan be adopted by which standard and reliable active remedies be placed within the reach of the general public, with full directions for their use.

As long ago as March, 1855, the editor of the *Medical and Surgical Reporter*, under the caption of "Domestic Medicines," wrote: "It is astonishing to what an extent the uncertain and often deleterious preparations styled Patent Medicines are consumed by all classes of society, and there is no question but such a wholesale consumption of drugs, having no guarantee of their purity or innocuity but that of a single mercenary individual, is calculated to do untold injury to the health of the community. But there is a demand for domestic remedies which these preparations are intended to supply, and the question arises whether this demand can be supplied in a manner that will guard against the venality of using drugs of uncertain properties or deleterious qualities. Let a committee be appointed by the American Medical Association to draw up a set of formulas for remedies calculated to meet the ordinary demands of domestic practice, and let these formulas be adopted by the American Medi-

cal and Pharmaceutical Associations, and published for the benefit of all concerned."

The project at the time was warmly advocated by the *American Medical Gazette* and other leading authorities, but with no definite response from the associations to which the writers appealed.

Within a very recent period the subject has been revived and its growing importance urged by *The Journal of Materia Medica* and other prominent periodicals. Our own attention has been drawn to it forcibly, and we are fully convinced that the adoption and general use in private families of a limited number of carefully selected remedies, adapted for different trains of symptoms, prepared from pure and fresh drugs, and accompanied with full and plain directions for use, would be found to be of incalculable benefit to all.

It were very much to be preferred, as the editor of the *Medical and Surgical Reporter* suggested, that a set of formulas suited to the ordinary demands of domestic practice be selected and indorsed by the chief medical association of the country. But during all these years that has not been done, and it is well known that there is no prospect of any such action being taken. The only resource left, therefore, is for some individual to undertake the task.

It has been pressed upon us that there is no more suitable channel through which to recommend to the public the use of such selected remedies than in a work of the present character. And, influenced by the correctness of this view, as well as by the mani-

fest propriety of placing within the reach of our readers all the best means with which to cure the diseases they may have to encounter, we have with great care made a selection of a limited number of STANDARD DOMESTIC REMEDIES, which will meet all ordinary demands of home treatment.

The principles which have guided us in this selection are—

1. *Efficacy of the Preparation.*—To secure this, we have taken a favorite recipe of some eminent physician, in whose hands it has stood the test of a wide experience and by whom it has been recommended in decided terms.

2. *Absence of Dangerous Properties.*—As these remedies are designed for family use, it is of essential importance that they be so compounded as to avoid endangering life even if taken carelessly or in excessive quantities. As we have before stated, this is often difficult to accomplish, but by slight modifications and occasional substitutions in the recipes selected, we believe we have accomplished this without subtracting at all from their value.

3. *Avoidance of Unpleasant Taste.*—Too often, we are sorry to say, this principle is overlooked in writing prescriptions. A dose for a sick person should always be so combined with flavoring substances as to be rendered palatable to the taste whenever possible—and the rich resources of modern pharmacy render it possible in nearly all instances. We have endeavored, by various minor and pleasant arts of the pharmacist,

to avoid disgusting the sense of taste even in taking so proverbially nauseous an article as a dose of medicine.

4. *A Convenient, Compact, and Portable Form.*—Most medicines are administered in a fluid form. But this is merely on account of the greater readiness with which they are swallowed. They are much less compact, and more liable to breakage, than when prepared as *powders*. For this reason we have directed all our standard domestic remedies to be prepared in the latter form. When they are taken, a portion can readily be dissolved in water or syrup.

We have based the selection of the formulas upon these principles, and also upon the adaptability of the preparations to be used extensively in the treatment of various diseases. As we have before shown, the *symptoms* which the physician has to treat are not numerous, and many of them reappear in the large majority of complaints. The *specifics*, on the other hand, that is, those drugs which have the power of curing certain diseases almost without fail, are very few in number.

THE ANODYNE.*

The anodyne which we would recommend is a modification of the formula of Dr. Edward John Waring, F.L.S., an experienced London physician.

It is composed of a small quantity of gum opium and bromide of potassium, combined with various

* The precise formulas for the various preparations mentioned will be found in the appendix to the present work.

aromatics of a soothing character. The amount of opium being quite small, the deleterious effects of the drug are avoided, while the addition of the bromide of potassium not only increases the efficiency of the mixture as a sleep-producer, but also does away with the unpleasant after-effects which are produced on some constitutions by the use of opium even in very small quantities. The nausea, headache, loss of appetite, etc., which such persons experience, are happily prevented by the presence of the bromide.

Such an anodyne may be used by an adult, in the doses mentioned, once every half hour until sleep is produced. But we do not recommend it, or any other preparation containing opium, for children under ten years of age. Sleeplessness and pain in their case can nearly always be remedied by simpler measures than the administration of opiates; and especially is it a good rule in domestic practice to avoid dosing these tender beings with a drug of such power.

Adults may use this anodyne when they suffer from pain of any description, from nervousness and sleeplessness, from excessive action of the bowels, or from sickness of the stomach. One such powder should be stirred in a wineglassful of water, and the whole swallowed.

THE ASTRINGENT.

We have already explained that an astringent is employed to check excessive action of the bowels in diarrhœa, dysentery, etc. That which we would recommend as the best formula which can be employed

for this purpose, in domestic practice, is a modification of the "compound catechu powder" of the Dublin Pharmacopœia. The eminent German medical writer, Dr. Felix von Niemeyer, regards the modification which we have chosen as superior to any other which he had used in his extended experience. Gum catechu is an extract from the heart wood of a tree which grows in the East Indies. In the formula referred to, under this section, the gum or extract is associated with a certain amount of precipitated chalk, and with cinnamon and nutmeg, both aromatic species which serve not merely to conceal the somewhat harsh taste of the gum, but are themselves pleasant stimulants to the bowels and stomach.

It is important to observe that neither this nor any other astringent should be used when there is any inflammatory action of the intestines, which can readily be ascertained by the presence of tenderness on pressure.

THE PURGATIVE.

An active cathartic, that is, a medicine which will act promptly and efficiently on the bowels and relieve them of their contents, is of the utmost consequence in the domestic pharmacy.

That which we have selected as well adapted to this purpose, and best suited to fulfil all the various purposes for which such a medicine is taken, is based upon a formula of Dr. J. M. Da Costa.

It contains a small portion of rhubarb, one of the best foreign laxatives; a fraction of a grain of the

extract of the root of the May-apple, or podophyllum, which vegetable substance is now considered to act quite as efficiently on the liver as mercury, and to be free from the objections which many have urged to the latter drug; a moderate quantity of Rochelle salts, thus combining the peculiar action of the saline cathartics with those from vegetable sources; and a small portion of powdered red pepper, which serves as a grateful stimulant to the coats of the intestines.

This cathartic may be taken every six hours until the effect is produced. It will not lead to an exhausting diarrhœa, as is the case with some preparations of the kind, inasmuch as the rhubarb has a constipating power after its first effects are produced.

THE EMETIC.

The emetic which has been selected is that so highly recommended by Prof. Fordyce Barker, which depends for its efficiency on the presence of a few grains of turpeth mineral. Prof. Barker has found this so useful, simple, and harmless, that he has been accustomed, as he mentions in one of his works, to have it made up in proper doses (the same which we have adopted), and to leave it with families, especially with such as have croupy children, with directions to employ it as required.

Its value is not merely to relieve the breathing in croup, but in any case where there is need that the stomach be promptly relieved of its contents it may

be administered. Copious drafts of warm water will facilitate its action.

Sometimes, at the very outset of severe diseases, the first step to take is to relieve the stomach of its contents by a prompt emetic. Dr. Bennett, of Edinburgh, is of opinion that sometimes this procedure will greatly modify the violence of an attack, and even throw it off altogether. He instances a threatened attack of typhus fever in his own case, which he thinks was avoided by prompt recurrence to this preventive means.

THE EXPECTORANT.

An efficient remedy for coughs and colds is indispensable in every household and in the trunk of every traveller. The numerous cough syrups, etc., recommended in the public papers, testify to the demand for such an article.

The powder which we recommend for the purpose contains some of the most efficient drugs which can be selected to alleviate a cough and loosen the expectoration. It is the judicious combination of one of the most skilful therapeutists of England, Dr. Edward John Waring, whom we have already mentioned.

The principal ingredients are powdered sal ammoniac and senega-root. These are associated with a small amount of gum-Arabic and liquorice-root, also in powdered form. One such powder should be placed

in a half tumblerful of *hot* water, sweetened to the taste, and stirred until it is cool enough to drink.

The bulky and often indifferently prepared syrups usually sold owe most of their efficacy to the sugar they contain, which lubricates and soothes the upper portion of the throat, and checks the tendency to cough temporarily. Most of them exert but a very small healing effect. Dr. Waring's formula, however, may be relied upon for its efficiency, and is not disagreeable to the taste.

THE STIMULANT.

In medical practice a stimulant is used to sustain or restore the powers for a temporary purpose and a brief period, as, for example, when there are symptoms of fainting, or where there is great exhaustion from the shock of an injury or loss of blood.

The substance which is most generally relied upon for this purpose is the carbonate of ammonia, a very efficient salt which actively excites the vital powers, and relieves the sense of failing strength. In combination with ginger, which is an aromatic stimulant of decided properties, it is presented in a formula by the late Dr. Thomas Hawkes Tanner, of London, which we have selected for our present purpose.

The uses of such a preparation are somewhat limited, yet, when called for, highly important. It is often necessary to arouse the flagging powers sufficiently to administer food or some more potent medi-

cine, and for this purpose the carbonate of ammonia is perhaps the very best stimulant we possess.

THE TONIC.

What a stimulant does for a few minutes, a tonic is intended to do permanently—viz., arouse and strengthen the physical forces. This must be done by directing our tonic to enriching the blood, increasing the appetite, and regulating the bowels.

Among the very numerous formulas for tonics which have been urged upon the profession, we have selected that of the celebrated Dr. ABERCROMBIE as answering these three purposes most completely, and as being, by its extended adoption among professional men, deserving of its reputation.

It is composed of sulphate of iron in the *granulated* form (which prevents change from exposure); a small quantity of aloes to regulate the bowels and prevent the constipation which so often accompanies debility; calumbo, which is a pure, bitter, vegetable tonic; and cinnamon, which is a grateful aromatic stimulant.

In cases of chronic dyspepsia, general debility, want of tone to the system, and in the convalescence from almost all diseases, a tonic of this character will be found eminently beneficial.

THE FEBRIFUGE.

The uses of a febrifuge are to diminish the feverish sensations so frequent at the outset of a disease, and to promote perspiration.

One of the most efficient ever devised is that proposed by Dr. DOVER, and extensively known by the name of "Dover's powder." Its composition, however, renders it both unpalatable and too potent for delicate individuals in the doses usually prescribed. We have, therefore, in adapting it to domestic use, employed several modifications which in great measure remove these objections, and we believe increase rather than diminish the activity of the preparation.

The addition of a small quantity of nitrate of potassa we have found by experience to increase its action on the skin and kidneys; and the flavoring substances which can be added, almost completely mask the disagreeable taste of the compound.

THE DIURETIC.

A diuretic we have explained to be a medicine which acts directly on the kidneys, increasing their secretion, and consequently the amount of urine which is voided.

They are from various sources, animal and vegetable. A combination of the two, of a saline and a vegetable substance, to wit, act more promptly than either when alone.

In conformity with this well-ascertained principle, the formula which we recommend for this purpose comprises one of the salts of potash and the powdered leaves of an indigenous plant.

The preparation should be steeped in boiling water, which should be taken while still warm, and in

abundant quantities. The free use of fluids aids all diuretics in their action.

In cases of gravel, suppression of urine, threatened dropsy, etc., such a remedy is of much value, and not unfrequently affords prompt relief.

THE ANTIPERIODIC.

Whenever a disease repeatedly diminishes or disappears, and then recurs in one, two, or three days, this *periodical* character of its attacks leads the physician to suspect at once the action of swamp-poison, such as gives rise to fever and ague.

The specifics which are used in such cases are called *antiperiodics*, and are almost always derived from the bark of the cinchona-tree of Peru, hence often called "Peruvian bark."

There are a large number of chemical preparations obtained from cinchona, more or less active in the treatment of miasmatic diseases. The most familiar is quinine, but the bitterness of its taste, and the unpleasant effect on the head which it exerts, render it exceedingly disagreeable to many people.

Hence we have chosen one of the other preparations of the bark, and, by combining it with flavoring materials, believe that it will be found of nearly equal value in all cases, and much less objectionable on the score of taste and after-effects.

THE VERMIFUGE.

As worms most frequently appear in children, who object to taking unpleasant medicines, one of the most important qualities of a popular vermifuge must be a not unpalatable taste.

Having this object in view, we have selected a formula which will be found to combine in a marked manner a destructive action on worms with an agreeable flavor which will render it easy of administration to the most sensitive patient.

Whenever a medicine of this character is given, it should be followed, the second day, by a dose of the cathartic mentioned in our list, or some other efficient laxative, so as to thoroughly purge the bowels.

Often parents and nurses imagine that a child has worms when none are present, and are astonished after administering a vermifuge that no worms are passed. We will give in the appropriate place full directions how to form a correct opinion on this topic.

THE SALVE.

An application to sores, ulcers, festers, and wounds is an essential to every family, and they should take care to provide themselves with a good one.

Our experience has been that there is none superior for this purpose to the carbolic acid ointment, prepared from chemically pure carbolic acid in crystals, pure leaf lard, and white wax. The strong, tarry odor of carbolic acid, so disagreeable to many people,

is almost entirely avoided by the use of a perfectly pure article. This has but a feeble smell, and one that is far from unpleasant, resembling somewhat the faint scent of a geranium leaf. The skill of the pharmacist will enable him to conceal even this by the use of an appropriate essential oil.

An ointment prepared in this manner will act most favorably on wounds of the surface of the body, either in the human species or in the lower animals. It will heal old sores, entirely neutralize their foul odors, and prevent flies, etc., collecting on galls, etc., in horses and cattle. The eminent London veterinary surgeon, Dr. MORTON, recommends it for this latter purpose beyond any other with which he is acquainted.

OINTMENT FOR THE ITCH.

The itch is so contagious and so frequent in many localities, especially in public and boarding schools, that every family should keep on hand an ointment which will prove a prompt and effectual remedy as soon as the disease manifests itself.

We have such a one in the preparation recommended by the distinguished American surgeon, Professor S. D. GROSS. It is composed of sulphur and nitrate of potash.

This we recommend prepared in separate papers, one of which is to be rubbed up in a tablespoon heaping full of fresh pure lard, and the parts anointed with it night and morning. The treatment should commence

with a thorough cleansing of the part with strong soft soap and water.

AN ALTERATIVE.

By this name we mean a medicine which will change or *alter* the functions of the system, without direct action on any particular one of them. Such remedies are useful in many chronic complaints, where the state of ill health seems dependent on a generally disordered condition of the functions.

That drug which is undoubtedly the most efficient in this direction is the iodide of potassium. Many preparations offered by venders of patent medicines depend for their power upon it.

In the form in which we recommend it, it will be found combined with other substances to increase the promptness of its action, and to conceal the somewhat salty and distasteful character of the crude substance.

CHAPTER VI.

ON GENERAL DISEASES.

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THE CAUSES OF DISEASE.

IN commencing this chapter, we will preface it with a few words on the Causes of diseases. In a general way, this subject has been spoken of in the first part of our work, and also referred to on the previous pages of the Third Part.

Communicable diseases are those which are contracted by the presence of a person who suffers from them, such as smallpox, cholera, yellow fever, etc. Whether this is owing to infinitely small organic bodies—animal or vegetable—which are given off from the body of the patient and gain access through the lungs to the blood of the healthy bystander, we cannot definitely say at present. But the fact cannot be disputed that such diseases pass *from person to person.*

Infectious diseases are those which arise from the presence of some poisonous material in the air of a locality, which material is not, however, increased and disseminated by the human body. Fever and ague, remittent fever, and probably typhoid fever, are examples of this class of causes. Some emanations from swamps, rotting wood, and freshly upturned soil render the atmosphere unhealthy, and persons sicken without apparent cause or exposure.

When this poison is widely distributed, and sufficiently powerful to affect many, the disease thus caused is said to be *epidemic;* when it is always pre-

sent in a locality, but not always so violent as to cause an epidemic, it is said to be *endemic.*

Besides from actual poisons of this nature, diseases arise from *disturbance of functions.* When perspiration is suddenly checked by exposure to a draft of cold air, or when the blood is impoverished by an absence of proper food, and the necessary physiological changes thus prevented, the part and the whole body suffer, and some disease arises.

An inborn or *hereditary tendency* to disease is very frequently present. This we have discussed so fully in our other works, and in the first part of the present treatise, that we need not recapitulate here what we have there said.

Often disease arises *without known cause.* It should always be the duty of both attendants and patients to ascertain by minute inquiry in such cases the probable origin, so that it may be properly guarded against in future.

Scrofula.

There is, perhaps, no disease more widely spread than this. Families and society at large alike suffer from ravages due to the scrofulous taint.

DEFINITION OF THE DISEASE.

The word scrofula is derived from *scrofa*, meaning a sow. The term was originally confined to a swelling of the glands of the neck, which gave to the jaws of the patient the appearance of the pendulent jowls of the pig. At present, it has a wider significance. It is now applied to a morbid state of the system which shows itself in disordered blood, swollen glands, running sores, disease of the spine, hips, lungs, eyes, and ears. Scrofulous disease of the lungs is known as consumption, and will receive our attention when we come to treat of diseases of the organs of breathing.

ITS EXTENT AND MORTALITY.

Scrofula is not only wide-spread, but of great mortality. The diseases to which it gives rise, or with which it is intimately associated, are numerous and of fatal character.

It usually appears between the ages of three and ten, although it sometimes attacks the infant before birth. The disease shows itself in children in the form of external scrofula, but after the age of puberty its

most common manifestation is seen in that dreaded foe to American life, consumption of the lungs.

THE CAUSES OF SCROFULA.

Scrofula is largely hereditary. It is a legacy handed down from parents to children. Among the other causes which predispose to it are bad air, bad food, and a cold, damp atmosphere. Whenever the taint exists in the system, whatever tends to lower the vital forces and to injure the general health is calculated to call the disease into action. Hence residence in the crowded, ill-ventilated, and filthy lanes and streets of a great city is a prolific cause of disease. The children of the city poor are very generally scrofulous on this account, and because of their insufficient and unwholesome food, foul clothing, and imperfect shelter from cold and moisture. The children of the rich suffer almost to an equal extent, because of the unhealthy habits, the intemperance, and the vices of their parents. Hooping-cough is sometimes followed by the development of scrofula. This more frequently happens among the weak and badly nourished children of the poor than those in better circumstances. Long-continued dyspeptic affections sometimes give rise to the disease; so also does the excessive and prolonged use of mercury.

IS SCROFULA CONTAGIOUS?

On this point there is a difference of opinion in the profession. Some recent experiments made in France would seem to show that in some cases the disease is transmissible from one person to another when they live together and breathe the same atmosphere. There is little doubt that scrofulous disease of the lungs, consumption, is communicated occasionally in this way. In most instances, however, scrofula is the result of inheritance or developed by defective hygiene.

IS SCROFULA DANGEROUS?

When scrofula attacks the internal organs, particularly when it invades the lungs, the fatal character of the malady is unfortunately known to every one. The external forms of scrofula are more amenable to hygienic and medicinal treatment. The disease, when it attacks the spine and the hip-joint, often produces frightful deformity. Modern surgery has made rapid advances in the treatment of spine and hip-joint disease. When seen sufficiently early, the skilful surgeon, by means of appropriate apparatus, can save not only the life but the symmetry of the patient. No parent of a scrofulous child should, therefore, lose time in seeking the counsel and personal attendance of an experienced surgeon so soon as there is any sign of disease of the spine or hip, one of the first symptoms of the latter being persistent pain in the *knee*. If we could impress upon parents the importance of

this advice, there would be fewer cripples in the next generation.

HOW LONG DOES SCROFULA LAST?

The duration of the disease varies according to the parts affected, the general powers of the system, and the nature of the surroundings. External scrofula frequently disappears under appropriate management during childhood, or, continuing after puberty, is finally recovered from in middle life. When the disease attacks the lungs, the case ordinarily terminates fatally in one or two years; when the brain is affected the patient may die in a few days.

THE CONSEQUENCES OF THE DISEASE.

The after-effects of scrofula are often of the saddest description. The disease may destroy the structure of a joint, and leave the person a cripple for life; it may impair the delicate organization of the eye or ear, and produce blindness or deafness; it may eat through the bony case of the spinal column, and make a hunch-back; it may form ulcers upon the skin, and mark the neck or face with ineradicable scars. We see, therefore, the importance of prevention and of early treatment in this disease.

HOW TO RECOGNIZE THE DISEASE.

Those who are laboring under scrofula, or who have a scrofulous constitution, are usually readily distin-

guished by the character of the complexion, the condition of the blood, and the state of the digestive organs. Prof. Gross gives the following graphic description of the disease:—

"The complexion is generally brunette, and the hair, for the most part, dark, although in both these respects the greatest possible diversity exists. The eyelashes are drooping and of extraordinary length; the pupils are habitually dilated; the upper lip is tumid; the face is pale and puffy; the hands and feet are nearly always cold; the body is usually impressible by atmospheric vicissitudes; the belly is hard and distended; there is a deficiency of muscular strength; and the intellect is dull and sluggish, instead of being sprightly and precocious, as is usually represented. The digestive organs are subject to frequent derangement; the appetite is irregular and capricious; the bowels are either constipated or relaxed, seldom entirely natural; digestion is feeble and imperfect; great annoyance is experienced from flatulence and acidity; and the individual is often a martyr to dyspepsia. Children predisposed to the disease are particularly prone to eruptions about the scalp, to purulent discharges from the ears, and to chronic enlargement of the tonsils.

"There is another class of scrofulous subjects of a state of mind and body almost the opposite of that just described. The complexion is light and florid, the eye blue, the mind usually active, and the circulation of the blood on the surface quite vigorous. The parts of the body which are the most liable to suffer,

in this form of constitution, are the bones and joints, the eye, skin, and glands of the neck, consumption being more rare than in the dark variety."

THE TREATMENT OF SCROFULA.

We have dwelt at some length, as our reader will remember, on the prevention of scrofula (see page 202). We shall, therefore, confine our remarks here to those means best calculated to combat the inroads of the disease when it has already established itself in the system. These means are twofold, hygienic and medicinal. First, as to the

HYGIENIC MEANS OF CURE.

These are all important in this affection. If they be neglected, medicine will amount to little. We may enumerate them as follows:—

1. *An abundant supply of fresh pure air for breathing.* A *change* of air is often very beneficial. The patient should not, of course, be taken to an unhealthy place, nor to one extremely cold or hot. The soil should be dry, and the temperature as uniform as possible. Scrofula seldom breaks out in the warm, dry weather of summer.

2. *A residence by the seaside.* The advantage of a sojourn at the seaside, and of sea-baths, in cases not too far advanced, can scarcely be overestimated.

3. *Exercise in the open air.* Patients are ordinarily too closely confined to the house in this affection.

They must be encouraged to seek active exercise out of doors, and to regard the sedentary pursuits of the house as dangerous.

4. *Cleanliness of the person.* The skin should receive special attention, and be frequently washed with salt and water.

5. *Warm clothing.* The dress should be such as to retain the warmth of the body. Flannel must be worn next the skin in all seasons of the year. The feet, which are always inclined to be cold in scrofulous persons, are to be warmly covered by thick stockings and shoes.

6. *Simple but nutritious food.* The diet should consist of fats, oils, milk, cream, and both vegetables and meat. It should be unirritating and pleasant, and not taken in such quantities at one meal as to oppress the digestive powers.

7. *Plenty of sleep.* The hours of rest should be from sunset to sunrise.

8. *A sea-voyage.* A long voyage, when the disease is not too far advanced, is of incalculable benefit.

MEDICINAL MEANS OF CURE.

In connection with the hygienic means of cure we have just mentioned, certain drugs have a curative agency—in connection with hygienic means we say, for the two cannot be separated. Medicine alone will cure no case of scrofula. Proper medication will hasten the recovery of a patient whose general health is at the same time well cared for. The object of

treatment is to improve the nutrition of the body, so as to secure healthy blood. To accomplish this, the most important step is to enable the patient to take and digest as large a quantity as possible of fatty matters. A number of

HOME REMEDIES

Are useful in this disease. The *marrow* of bones of oxen has been employed with benefit. So also has oil from the foot of the young heifer—*neat's-foot oil.* Suet boiled in rice milk (for receipt, see page 499) is also a remedy with some reputation. Asses' milk, and milk drawn from the cow a short time after the greater part of the milk has been withdrawn, when freely taken and persevered in, have accomplished good results.

DRUGS AND STANDARD REMEDIES.

There is no article of greater value than *cod-liver oil.* Those cases are most improved by it where there is much emaciation and where the disease has lasted a long time. Only the cleanest and most agreeable kind of oil should be chosen, and its use is to be persevered in for a long while. The dose for children is a half teaspoonful three times a day, gradually increased to two teaspoonsful thrice daily; for adults, a tablespoonful three times a day. The best time for its administration is between meals, after the process of digestion is pretty well finished. Some prefer to

take it before meals, and thus avoid the disagreeable rising of the oil in the mouth; nobody likes it directly after meals.

Various methods of taking cod-liver oil so as to disguise the taste have been invented. Some think the taste best concealed by taking it floating on the top of a glass of ice-water, others in lemon-juice or the froth of porter. When it is possible to get soda-water, put up in bottles with a siphon for family use, the taste may be entirely masked in the following manner: Put in the bottom of a tumbler some syrup of sarsaparilla (or any other syrup which may be preferred, but sarsaparilla best conceals the flavor of the oil), fill up with soda-water, and, while still foaming, pour a tablespoonful of oil into the centre of the glass, and drink at once.

A piece of lemon-peel or cinnamon, or the chewing of a few cloves just before taking the oil, will disguise the flavor. Some prefer it beaten up with an equal amount of lime-water, or of milk, or with the yelk of an egg and a tablespoonful or two of compound tincture of cardamoms.

Or, the oil may be combined in either of the following ways:—

Take of—
Cod-liver oil, one fluidounce.
Peppermint-water,
Tincture of orange-peel, each half a fluidounce.
Mixture of gum Arabic, three and a half fluidounces.
Oil of winter-green, ten drops. Mix.

A dessertspoonful (two teaspoonsful) three times a day, for a child. This receipt will be found to disguise the taste of the oil.

Take of—
Cod-liver oil, one and a half fluidounces.
Oil of creasote, four drops.
Powdered tragacanth,
Powdered gum Arabic,
Powdered starch, each one scruple.
White sugar, one drachm.
Aniseed-water, four and a half fluidounces. Mix.

Take one or two tablespoonsful three times a day.

This makes quite a palatable mixture; the creasote in it renders the oil more readily borne by the stomach.

After the oil has been taken for a while it will not be necessary to resort to any means of disguising its taste, for it will cease to be disagreeable. When properly given, the cod-liver improves the condition of the stomach, increases the flesh and strength of the patient, and exerts a remedial influence upon the disease.

When the oil cannot be well borne by the stomach, it may be rubbed in over the belly and chest, and applied by means of lint saturated with it. Two tablespoonsful may be rubbed in this manner into the skin every evening at bedtime. To disguise the disagreeable smell of the oil, add to every two tablespoonsful twenty or thirty drops of the oil of cajeput. This method of administering the oil is useful both in the cases of children and of delicate adults.

Next to cod-liver oil, or, perhaps, of equal value with it, is *iodine*. About fifty years ago the virtues of this article were first made public by a physician of Geneva. Since then it has established itself as a most powerful anti-scrofulitic remedy. It is most commonly administered in the form of a preparation

known as Lugol's solution, or in union with iron, as the iodide of iron.

Of Lugol's solution the dose for a child is from two to ten drops, for an adult from five to fifteen drops, in a wineglassful of sweetened water, three times a day.

Or, the following formula may be used:—

Take of—
Iodine, ten grains.
Iodide of potassium, twenty grains.
Water, one fluidounce. Mix.

Dose, from four to six drops for a child, three times a day, in sweetened water; for an adult double or treble this dose.

The iodide of iron may be given as follows:—

Take of—
Iodide of iron, four grains.
Glycerine, half a fluidounce.
Infusion of columbo, two and a half fluidounces.
Mix.

Give one or two teaspoonsful three times a day for a child.

An adult may take the iodide of iron in pill form, a sugar-coated pill containing one or two grains three times in the twenty-four hours. Or the syrup of the iodide of iron may be employed in doses of from ten to thirty drops.

The bowels are to be kept in a good condition. Active purgatives are not to be used. If necessary, the patient may take in the morning a Seidlitz powder, or a dose of citrate of magnesia. The bowels should be kept in order by attention to diet and exercise rather than by medicine.

We have already spoken of the value of natural iron or chalybeate waters of some of the mineral springs of Virginia, and of the salt lakes of Florida, in this affection (pp. 645, 649, 651); of the importance of a change of climate (p. 655), and how to choose one (p. 656); and of the use of the black elder (p. 727), of burdock (p. 728), and of juniper (p. 730).

Scurvy.

This is a disease produced by too long confinement to one kind of food, and especially by the prolonged deprivation of the juicy vegetables. It is, therefore, met with in armies and ship crews, where the diet is deficient in variety or of bad quality, and the water foul or stagnant.

PREVALENCE OF THE DISEASE IN FORMER TIMES.

In former times, before its cause and remedy were known, the disease carried off, at times, from the armies and navies of the world, more men than were killed by the enemy. It is mentioned by Pliny as creating frightful ravages in the army of Germanicus during the long encampment in Germany beyond the Rhine. The army of Louis IX. in Egypt, in the year 1260, with only fish for fresh provisions, was nearly annihilated by an outbreak of this affection. The earlier navigators suffered severely from it. Thus Vasco de Gama, in his first voyage by the Cape of Good Hope to the East Indies in 1497, lost, out of a crew of one hundred and sixty men, one hundred. James Cartier, in his second voyage to New Foundland, in 1535, suffered fearfully. He says: "This malady being unknown to us, the body of one of our men was opened to see if, by any possible means, the occasion of it might be discovered, and the rest of us preserved. But in such sort did the malady increase, that there were not above three sound men left. Twenty-five of

our best men died; and all the rest were so ill that we thought they would never recover again." Admiral Hosier, who sailed from England for the West Indies in 1726 with seven ships of the line, twice lost his whole crew by scurvy. Anson, in his celebrated expedition against the Spaniards in 1740–42, lost within the first ten months nearly two-thirds of his crew by scurvy, the deaths amounting at one time to four or five a day, and during the remaining period of his voyage he lost one-half of the survivors. Indeed, it has been asserted, on good authority, that prior to the nineteenth century more seamen perished from scurvy alone than from all other disease, tempest, and battle combined. One of the greatest triumphs achieved by the celebrated navigator, Captain Cook, was against this disease. He returned in 1775 from a three years' voyage with a healthy crew, of whom only one out of the one hundred and twelve men had died from disease. For his important improvements for preserving the health of seamen, the Royal Society bestowed on him the medal of Sir Godfrey Copley. He is said to have given his men, as part of their diet, the following articles as preventives against scurvy: sowens, malt, sugar, French acid wines, spruce beer, and sour-krout. The use of this last article by the Dutch sailor is stated as the reason of his very general immunity from the disease.

Dr. Lind, in a work on scurvy published in England in 1757, clearly proved the preventive powers of lemons and oranges against this disease. But his earnest counsels to his government on this point were unheeded

for nearly forty years. In fact, the most conclusive evidence in regard to the influence of lemon-juice in preventing scurvy was obtained much earlier, but disregarded. Four ships sailed from England in 1609 for the East India Company. One-fourth of the crews of three of these ships died from scurvy before they arrived at the Cape of Good Hope; the crew of the fourth, the commodore's ship, escaped entirely any visit from the disease, in consequence of three tablespoonsful of lemon-juice having been served daily to each of the men. Finally, in consequence of a representation of the medical board of the navy in 1795, the English admiralty issued an order for the furnishing of the fleet with a regular supply of lemon-juice. Since then the disease has been gradually becoming extinct in the English navy.

The United States army suffered from scurvy both in the Mexican war and during the late civil conflict. Dr. Clymer states that, in the column which marched on the city of Mexico, the men, for some time previous to their landing at Vera Cruz, during the siege, and afterwards, could obtain no vegetables. On their arrival at Jalapa, although there had been plenty of fresh beef, there was scarcely a man who did not have a taint of scurvy in his system. Towards the close of our civil war the disease appeared in both armies, in consequence of a diminished commissariat, increased hardships, and the want of fresh vegetables.

THE CIRCUMSTANCES UNDER WHICH SCURVY APPEARS.

Age and Sex.—Scurvy is not often seen in childhood. It appears more frequently among men than women, because the former, as soldiers, sailors, and travellers, are more frequently exposed to the causes of the disease.

Previous Health.—Those who have previously suffered from chills and fever are known to be more open to scurvy, when exposed to the influences which produce it, than those who have never had any malarial affection. It was found in the Crimean army that scurvy was more prevalent and fatal in those regiments which had been stationed recently in a malarial country.

Weather and Climate.—It is known that exposure to damp and cold favors the development of this affection. So also do homesickness, disappointment, and depression of spirits. We find, however, the principal, and in fact the one essential cause of the disease, in the

Diet.—Every attack of scurvy is preceded and induced by a *deficiency or want of fresh vegetables.* With an abundance and variety of vegetables, scurvy is impossible. This matter of *variety* is important. Upon no one article of diet, excepting milk, can a man live without impoverishing the blood. Monotony and restriction in food endanger the health. An *exclusive* diet, even of beef and potatoes, will disorder the blood. It is not uncommon to see scurvy among farm-laborers, who have been living upon salt meat and few or no

vegetables. The giving of vegetable food, especially of the juicy vegetables, is the great preventive and counteractive of scurvy. The use of salt, to which scurvy is sometimes attributed, has no influence in producing it.

IS SCURVY DANGEROUS?

When proper medical care and diet can be had, scurvy is usually readily controlled—recovery taking place even when the disease seems very severe. In those cases where proper food and medicine cannot be had, the malady is very fatal, as is evident from the account we have given of its fearful ravages by sea and land.

THE DURATION OF THE DISEASE.

Scurvy ordinarily lasts a number of weeks. Under favorable circumstances it not unfrequently lasts many months. Patients recover their health and strength slowly.

HOW TO TELL THE DISEASE.

One of the first symptoms is a change in the color of the skin, especially of the face and eyelids. Black and blue looking swellings surround the eyes. At the same time, wearying pains are complained of in the bones, the muscles are stiff and painful, the spirits depressed, and the mind anxious. There is a great longing for juicy fruits and fresh vegetables, of which the patient

often dreams. The breath becomes offensive, and attacks of difficulty of breathing are readily brought on by the least exertion. With these symptoms there is no fever, the skin being rather cooler than natural, and the pulse slow. As the disease advances, the countenance gets bloated and yellow or sallow, the gums swell and become soft, spongy, and red, bleeding upon the slightest touch. In old persons, who are toothless, the gums are not affected, but remain healthy all through the disease. Gradually, the teeth loosen, the breath becomes more fetid, and the tongue white. The patient becomes weaker and weaker, bleeding ulcers break out over the body, profuse bleeding takes place from the mouth, nose, stomach, and bowels, old sores open, and the bond of union between the ends of broken bones softens and dissolves so that the ends separate. The pulse now increases in frequency, beating from 120 to 140 times in the minute, the teeth fall out, and the gums fall off in shreds, diarrhœa or dropsy appears, and the patient dies suddenly, perhaps after having just taken a short walk.

The tendency to *faint* is very great in severe cases. Consequently, a slight motion, suddenly sitting up in bed or rising from a chair, may lead to fatal swooning. It is said of the ghastly voyage of Lord Anson, of which we have spoken, that many of the men, although confined to their hammocks, ate and drank heartily, were cheerful, and talked with much seeming vigor and in a strong tone of voice, yet, on their being the least moved, although it was only from one part of the

ship to the other, and that in their hammocks, they immediately expired. Some, confiding in their apparent strength, resolved to get out of their hammocks, but died before they reached the deck. Others, able to walk the deck, dropped dead on attempting any unusual exertion.

THE TREATMENT OF SCURVY

May be briefly stated as follows: keep the patient in a pure air; make him warm and comfortable, and give him fresh succulent vegetables and juicy fruits. Lemon or lime juice is particularly valuable, both as a preventive and remedy—it is a specific against the disease. Vinegar is also useful, and pickles, sour-krout, and salads. Oranges, cocoanuts, and water-cresses are all efficient remedies. Among vegetables, the potato occupies the first rank; then the onion, sliced and eaten raw; cabbage, particularly as sour-krout; prickly pear; wild artichoke; green corn; yam; sorghum; apples; leeks; garlic; turnips. Besides these remedies, new milk and nourishing soups are to be given, and, so soon as the condition of the gums will permit, fresh or even raw meat.

Lemons, cut into small pieces and eaten with sugar, are very grateful and beneficial to the patient.

Spruce-beer is an admirable remedy in scurvy, and a wholesome, agreeable drink for those exposed to the disease. It was used successfully by Captain Cook, as we have mentioned, to preserve the health of his crew. It is made as follows:—

Select young branches from the Black Spruce Fir (*Abies nigra*), and extract the essence from them by boiling down to concentration. Take of this spruce essence, a tumblerful (half a pint); bruised allspice and ginger, of each four ounces; water, three gallons. Boil for five or ten minutes; then strain, and add eleven gallons of warm water, a pint of yeast, and six pints of molasses. Mix, and allow the mixture to ferment for twenty-four hours.

Dried or desiccated vegetables are inferior to fresh, but useful if properly cooked. Often great benefit is derived from drinking the water in which desiccated potatoes have been soaked and boiled. This remedy was used with success in our last war, when fresh vegetables could not be had. Potatoes are best given raw, grated, or cooked *unpeeled.*

Raw vegetables are often preferred by the scurvy patient, and eaten with avidity.

Lemon-juice, which is almost infallible, is given in the amount of one, two, or three wineglassesful in the course of the day. If there be diarrhœa, add a few drops of laudanum to each dose.

Another most excellent remedy is nitre (nitrate of potash):—

Take of—
Nitre, two drachms.
Vinegar, six fluidounces. Mix.
This amount to be taken in the twenty-four hours.

Dr. Parkes, the well-known English authority on practical hygiene, advises that the following measures be adopted in time of war, in prolonged sojourn on

board ship, or at places where fresh vegetables are scarce.

1. The supply of *fresh* vegetables is to be increased by all means in our power. Even unripe fruits are better than none at all, and we must risk a little diarrhœa for the sake of their properties against scurvy. In time of war *every* vegetable should be used which it is safe to use, and when made into soups all are tolerably pleasant to eat.

2. The supply of *dried* vegetables, especially potatoes, cabbage, and cauliflowers, turnips, parsnips, etc., is perhaps less useful; dried peas and beans are useless. As a matter of precaution, these dry vegetables should be issued early in the campaign, but should never supersede the fresh vegetables.

3. Good lemon-juice should be issued daily, two tablespoonsful to each man, and it should be seen that all take it.

4. Vinegar, from one to two tablespoonsful daily to each man, should be issued with the rations and used in the cooking.

5. Citrate of potash, tartrate of potash, lactate of potash, and the malate of potash should be issued in bulk, and used as drinks or added to the food. The easiest mode of issuing these salts would be to have packets containing enough for one mess of twelve men, and to instruct the men how important it is to place them in the soups or stews. Possibly they might be mixed with the salt and used merely as salt.

In severe cases of the disease the patient must be kept constantly lying down; it is dangerous to rise to

the erect posture. The use of a water-mattress, if it can be obtained, will prevent bed-sores; otherwise, employ the cushions we have described in the article on the "Furniture of the Sick-room." (Page 430.)

The patient should be diverted by a cheerful variety of amusements, and homesickness, when present, remedied, if possible, by sending him home.

As the patient recovers but slowly, and is in more or less danger until he is entirely well, great care should be exercised in regard to returning to ordinary pursuits or assuming any work requiring violent exertion. It has happened in the navy, that sailors, whom the officers of the ship supposed well enough to return to duty, have been ordered aloft and fallen dead from the rigging.

Rheumatism.

This is a common, painful, and sometimes dangerous disease. A knowledge of its nature and treatment is interesting and important to the public, because such knowledge can be turned to practical account, in relieving the intensity of the suffering, in shortening the duration of the malady and of the period of convalescence, and in guarding against many of the perils of the attack. The disease presents itself in one or two forms, either as rheumatic fever, or as chronic or muscular rheumatism. There are a number of other minute divisions and technical terms adopted by physicians to indicate the locality and cause of the affection, but for all practical purposes of recognition, prevention, and treatment the two divisions we have named are sufficient.

RHEUMATIC FEVER.

This disease is also known as articular rheumatism, from the fact that the articulations or joints are prominently affected; and also as acute rheumatism, because it has a rapid progress and a comparatively short duration.

In regard to the circumstances under which rheumatic fever attacks a person, age, sex, previous health, season of the year, weather, climate, and occupation all exert some influence on the liability to the disease.

Age.—Very few children suffer from rheumatism. Indeed, early infancy appears to be a safeguard against

this malady so common in later life. A case occurring under four years of age is a very rare and exceptional one. Not often does it appear before the fifteenth year. Young and middle-aged persons are its ordinary victims, the greatest number of cases occurring between fifteen and thirty. In old age it is comparatively unfrequent—although aged persons suffer from muscular stiffness and pain.

Sex.—Men are supposed, from the nature of their occupations, to be more liable to rheumatism than women. After the change of life, however, women are more liable to the disease than men of the same age.

Previous Health.—Those who suffer from general debility—a prostration of the physical and nervous powers—are, as would naturally be supposed, more open to the invasion of the disease than those in robust health. Whatever, therefore, tends to depress the system, predisposes the person to an attack of rheumatic fever. The possession of an hereditary taint is also a predisposing cause, for the disease is of a distinctly hereditary character. Nearly one-third of all the cases admitted into a large London hospital were traced, on careful examination, to a family taint.

Season of the Year, Weather, and Climate.—It is not in the coldest seasons and climates that rheumatism is most prevalent, but where the temperature is most changeable, and where the person is most exposed to the influence of cold and dampness combined. It is not the amount of cold, but the variable character of the weather, that does the harm. It has

been estimated that there are five persons attacked in summer to seven in winter.

Occupation.—Those occupations which expose the worker to cold, moist air, and especially those in which there are alternations of temperature, are the most apt to develop rheumatic disorders. Hence, laborers and others who are unable to guard themselves against dampness are more apt to suffer than those who have a more sheltered occupation.

Rheumatic fever is not contagious.

IS RHEUMATIC FEVER DANGEROUS?

The danger is not so much from the disease itself as from the serious affections of the heart to which it may give rise. In those cases which end fatally, the death almost always occurs from inflammation of the heart. The number of deaths from rheumatic fever scarcely exceeds one out of every thousand deaths from all other causes. Hence, we see the comparative freedom from danger of death in this, one of the most frequent of all diseases; in all probability the number of fatal terminations hardly exceeds two out of every one hundred cases of the disease. It must be remembered, however, that many persons who recover from an attack of rheumatic fever die some months or years afterwards from disease of the heart which the rheumatic poison has caused.

HOW LONG IT ORDINARILY LASTS.

The ordinary duration of an attack of rheumatic fever, when it is of an uncomplicated character and judiciously managed, is from ten to twenty or thirty days. In some cases the fever and pain are gone in three or four days; generally, however, the fever lasts until the fourteenth day, when the pain in the joints begins to go, and by the fourth week the patient is well.

When patients recover with disease of the heart, the consequences are long and sad—a future of ill-health, palpitation of the heart, shortness of breath on exertion, and dropsy.

HOW TO TELL IT.

Rheumatic fever shows itself by severe inflammation of the hands, feet, or the larger joints, as the wrists, ankles, knees, elbows, and shoulder-joint. One or more of these parts may be affected; the patient is feverish and restless; the affected joint or joints are swollen, red, painful, and tender. The fever sometimes precedes by a day the swelling of the joints; often, however, the reverse is the case. Before the fever appears, the patient feels "out of sorts," he complains of chilliness, and looks pale and sallow. This chilliness soon passes away, and intense heat of skin follows. Now the disease may be considered fairly established, and the patient presents a pitiable spectacle. The pain in the joints is so severe, and the

tenderness so exquisite, that he cannot bear the weight of the bedclothes; he is restless, but dare not move; the skin is covered entirely or partially by a copious, sour perspiration, of an unpleasant smell; the tongue is heavily coated; the pulse rapid, full, and bounding; and the bowels ordinarily constipated, although occasionally there is diarrhœa.

The pain and inflammation are of a vagabond character, particularly at first, wandering about in many cases from joint to joint and from limb to limb, until it seems that scarcely any part of the body will escape its capricious attack.

At the height of the disorder, as has been aptly said, it is difficult to conceive a more complete picture of helplessness and suffering than that to which the patient is reduced. "A strong and powerful man, generally unused to disease, lies on his back motionless, unable to raise his hand to wipe the drops which flow fast from his brow, or the discharge which irritates his nostril. Indeed, he is so helpless that he is not only obliged to be fed, but to be assisted at every operation of nature. The sweat in which he lies drenched seems to bring him no relief; his position admits of no change; if he sleeps, his sleep is short, and he wakes up with an exacerbation of suffering which renders him fretful, impatient, and discontented with all around him." Such is the graphic portraiture from the pen of Dr. Aitken.

Relapses are very common, and as troublesome as the original attacks.

THE TREATMENT OF RHEUMATIC FEVER.

Various plans of treatment, and a vast number of remedies, have been employed to combat this disease. We shall mention only those now in favor with the profession, and which have received the sanction of the widest experience and highest authority. Nursing is of as much importance to the comfort and safety of the patient as medicine. We shall, therefore, first direct

HOW TO NURSE THE RHEUMATIC PATIENT.

The patient should not wear a linen or muslin bed-gown. No linen must be allowed to come in contact with the skin, even a linen front to the shirt is dangerous. The undergarment, bed-gown, and dressing-gown should be of flannel.

Particular attention is to be paid to the *making of the bed.* All sheets are to be removed, and the patient laid between blankets, the newest and fluffiest that can be obtained. The head must be carefully protected from drafts.

By clothing the patient in flannel, and placing him between blankets, perspiration is promoted, and chills prevented. The room should be kept at an even and rather warm temperature, and care is to be taken not to expose any portion of the patient's person, when moist with perspiration, to the air. He is to be sedulously defended from cold drafts.

On the first appearance of pain in any joint, it is to be well wrapped up in cotton-wool, smoothly adjusted

and firmly secured by a flannel bandage. The cotton-wool must be applied smoothly and equally to the surface of the affected joint. The application will then be found to give immediate and great relief to the pain. After the suffering joints are thus muffled in cotton-wool and flannel, a cradle, such as we have described on page 430, is to be placed where the weight of the bedclothes is painful.

HOW TO TREAT THE SWOLLEN JOINTS.

In many cases, the only local treatment the affected joints require is the wrapping of them up in cotton-wool and flannel. In our own practice, we ordinarily employ no other treatment even in the more severe cases. But there are three other methods of treating the affected joints frequently resorted to, from each of which good results are obtained, namely, applying fomentations, painting with tincture of iodine, and blistering.

Fomentations.—The painful red and swollen parts are wrapped in flannels soaked in hot water, or in a hot solution of carbonate of soda, made of the strength of an ounce of the soda to a pint of water, over which flannel cloths laudanum may be freely sprinkled before applying. Or, instead of laudanum, the tincture of belladonna may be freely applied to the painful joints, and covered with wadding, an application which often affords immense relief.

Painting with Tincture of Iodine.—This is strongly recommended by Prof. Harvey L. Byrd, of Baltimore.

The tincture of iodine may be applied pure, or diluted with an equal amount of spirits of wine (alcohol). It is to be put on by means of a camel's-hair pencil once or twice a day.

Blisters.—Small blisters applied over the affected joints early in the disease bring great relief to the sufferer, and may even cut short the disease. When several joints are complicated at the same time, so that three, or four, or five blisters may be employed, one over each joint, at the same time, the beneficial effects are most striking.

CURATIVE DRUGS.

There are a number of modes of medical treatment now in use. The principal are by alkalies, by nitre, by lemon-juice, and by bromide of ammonium.

The *alkaline treatment*, as it is called, consists in the administration of bicarbonate of potash or bicarbonate of soda. The bicarbonate of potash may be administered as follows:—

> Take of—
> Bicarbonate of potash, one ounce.
> Spirits of mindererus,
> Water, of each three ounces. Mix.

A tablespoonful in water every five hours. If the pain be severe, ten grains of Dover's powder may be given at night. The joints should be wrapped up, and the patient kept between blankets, in the manner we have described.

Bicarbonate of soda, in the same amount, may be substituted for the potash in the above recipe, or both may be combined.

As the patient gets a little better, the use of an alkaline warm bath will be found of much value. It is made as follows:—

Take of—
Bicarbonate of potash, two pounds.
Nitre, one pound.
Dissolve in the warm water for a bath. The bath should be about 98°.

The patient should not remain in longer than ten minutes daily.

Treatment by Nitre.—A very pleasant way of administering nitre is by dissolving it in some thin gruel in the proportion of two or three drachms to the quart of gruel, the whole to be taken during the twenty-four hours. Or, two drachms of nitre may be added to the prescription of bicarbonate of potash we have just given.

Treatment by Lemon-juice.—Lemon-juice is to be given in the dose of two or three tablespoonsful in water, three or four times a day. A pleasant and useful effervescing mixture is made as follows: Dissolve a powder of thirty grains of bicarbonate of potash in a tumbler one-fourth full of water; add a tablespoonful of lemon-juice, and take the mixture while effervescing. Have a number of these thirty-grain powders put up at the druggist's, and repeat the dose one hour after each meal.

Treatment by Bromide of Ammonium.—The following recipe is a valuable one:—

Take of—
Bromide of ammonium, half an ounce.
Tincture of orange-peel, half a fluidounce.
Water, two and one-half fluidounces. Mix.
Give a dessertspoonful every three hours, excepting at night.

The syrup of lime (for receipt, see p. 709) is strongly recommended on good French authority. Vinegar is a domestic remedy, which, in doses of a teaspoonful twice a day, has been found of service.

Of the standard domestic remedies, we recommend a dose of "the anodyne" at bedtime, and one of "the febrifuge" twice a day. This method of treatment will be found both pleasant and efficacious.

Whichever of these methods of treatment be adopted, the closest attention must be paid to the directions we have just given for nursing the patient, and also to the advice on the subject of diet. If these counsels be followed, good results will be obtained from the use of either of the curative drugs we have mentioned; if, on the contrary, they be neglected, no drugs will accomplish much.

HEART COMPLICATIONS.

We have spoken of the great danger in this disease, the affection of the heart, and have shown how by careful nursing it may be avoided. If the patient shows at any time in the course of the illness any heart trouble

by complaining of pain in that region and by the coming on of attacks of vomiting, instant action is demanded. Leeches are at once to be applied over the heart, followed by the use of warm flaxseed-meal poultices. Lose no time, minutes are now more precious than hours in other diseases. Better be needlessly alarmed than to be too late. Get the leeches as soon as possible, and, in the meantime, cover the heart with a thick, warm poultice and avoid exposing the chest to the air.

As the patient recovers, care must be exercised in returning to the ordinary diet. A relapse is often brought on by carelessness in this respect. The patient should take less meat than his feelings prompt him to swallow. Vegetable matter does not expose him to the same risks, he may therefore take freely of rice puddings, gruel, porridge, bread, mashed potatoes, and other like articles.

CHRONIC OR MUSCULAR RHEUMATISM.

Muscular or chronic rheumatism often follows an attack of rheumatic fever. The patient gets well of the fever and swollen joints, but soreness and stiffness of some of the muscles of the body remain to plague him for weeks or months. More commonly, however, muscular rheumatism comes on as a separate affection without having been preceded by rheumatic fever.

Age is one of the favoring circumstances for its development. There are few elderly persons who have not more or less acquaintance with this troublesome ailment. Cold, damp seasons of the year expose

persons to the danger of an attack. Hence the importance, especially for the aged, to carefully protect the skin during inclement weather.

In this disease there is usually little direct disturbance of the general health. The patient has no fever, but is restless and uncomfortable on account of the pain, which is aggravated by every motion. Ordinarily, the warmth of the bed affords relief, and the greatest suffering is experienced while the patient is up and dressed.

Muscular rheumatism is known under different names according to the parts affected. Thus when the muscles of the lower part of the back are the ones attacked, the disease is known as *lumbago*. Every motion of the back, particularly the act of stooping, is attended with pain in the fleshy muscles on one or both sides of the loins. When the muscles of the side of the neck are affected, the disease is then known as *stiff* or *wryneck*. It is commonly caused by sitting in a draft. To afford himself relief, the patient naturally carries his head bent over to the affected side, and any attempt at righting it occasions a sharp twinge of pain. When the muscles of the side of the chest, between the ribs, are affected, we have the disease known under the learned name of *pleurodynia*, which when translated into common English is, *pain in the side*. The "stitch" in the side which is due to rheumatism is often mistaken for pleurisy. The patient on taking a long breath feels a sharp pain between the ribs, which he attributes to disease within

the chest, instead of on the chest walls. Useless alarm is thus sometimes excited.

TREATMENT OF MUSCULAR RHEUMATISM.

The first requisite is to keep the affected parts warm. Thus, in *lumbago* several folds of warm flannel should be constantly worn over the loins, or a warming plaster should be applied. Brisk friction twice a day with coarse flannel and one of the stimulating liniments mentioned on page 529 will be found useful. Internally, one of the best remedies is *iodide of potassium*. It may be administered in the following formula:—

> Take of—
> Iodide of potassium, four scruples.
> Huxham's tincture of bark,
> Water, of each two fluidounces. Mix.
> Take a dessertspoonful in water, three times a day, after meals.

The bark in this prescription will prove beneficial by its tonic action.

Sleeping between blankets is both comfortable and useful to the rheumatic patient.

Sulphur, salt, and other natural mineral springs are of great service in many long-standing cases (see pp. 648, 651, and 652); so also are artificial sulphur-baths (see pp. 466, 716), and electricity (see p. 679).

Rubbing of the affected muscles with coal oil will sometimes greatly relieve the pain.

The American poplar (p. 726), horseradish (p. 740),

and Virginia snakeroot (p. 746), are domestic plants which possess anti-rheumatic virtues.

Excellent results will be obtained in muscular rheumatism by administering "the anodyne" of the standard domestic remedy list (p. 767) at bedtime, and taking "the alterative" three times a day.

Smallpox.

This is, in many respects, a very remarkable disease—remarkable from the ravages it has committed from time to time in the world's history, and from the fact that it is one of those few affections for which we now know an absolute preventive in the kindly influence of vaccination, which has been justly termed "the most valuable among the generous benefits conferred upon their fellow-men by the cultivators of the divine art of healing."

PROTECTION AFFORDED BY ONE ATTACK.

The contagion of smallpox is one of the most powerful and certain known. As a general rule, it may be stated that one attack exhausts the capacity of the system to acquire the disease again at any future time. We know there are many who will call in question the truth of this assertion, and point to those who, to their own knowledge, have had the disease more than once. We answer that this law is subject to very few exceptions indeed, and that most of the cases of so-called second attacks will not bear careful investigation. A great sensation was occasioned in France, in 1774, by the death of Louis XV. from smallpox at the age of 64; it having been generally believed he had had the disease when he was 14 years of age. But Dr. Gregory, who carefully inquired into all the circumstances, was convinced that his majesty never had the disease in early life. What

was supposed to have been an attack of smallpox was really chicken-pox. The same mistake has been, and is constantly being made, in reference to other persons. In this way we can account for most of the alleged cases in which the affection has reappeared in the same individual. This well-authenticated fact of the non-liability of an individual who has once passed through an attack of smallpox to suffer another attack from it, led in former times to the practice of inoculation.

INOCULATION AS A PREVENTIVE OF SMALLPOX.

Inoculation consists in artificially communicating the disease by introducing the virus of smallpox, obtained from the pustules of a patient laboring under it, into the economy by means of a puncture or scratch made in the skin. It was found that the disease so received was milder than that acquired in the natural way, and that it protected the individual forever after. It enabled the patient to prepare his system for the disease, and to select his own time to have it. All these advantages were very great ones, and led to the gradual introduction of inoculation, which was in more or less general use until the great discovery of vaccination supplied a safer, surer, and pleasanter means of protection.

When and where inoculation was first practised is unknown. For many centuries the Chinese claim that they practised a method known as "sowing" or disseminating the disease by placing the scales of the

eruption in the nostrils of healthy persons. From time immemorial, a tribe of the Brahmins in Hindostan engrafted the virus as a religious ceremony. A piece of cotton was soaked in the virus and then applied to a freshly made wound. The aid of the goddess of spots was evoked in behalf of the person making the sacrifice—this divinity having first hinted at inoculation, they alleged, for "the thought was much above the reach of human wisdom and foresight." It is known that the method of inoculation was practised in Turkey in the beginning of the last century, and probably much earlier. It was in this country that the distinguished Lady Mary Wortley Montagu, the wife of the English ambassador at the Ottoman court, learned the beneficial results of the practice, which she had the courage to introduce into England. She writes, in one of her entertaining letters, from Adrianople, in the year 1718: "The smallpox, so fatal and so general amongst us, is here entirely harmless by the invention of *engrafting*, which is the term they give it. Every year thousands undergo the operation; and the French ambassador says pleasantly, that they take the smallpox here by way of diversion, as they take the waters in other countries. There is no example of any one who has died of it; and you may well believe that I am well satisfied of the safety of this experiment, since I intend to try it on my dear little son. I am patriot enough to take pains to bring this useful invention into fashion in England." This in fact she did. The first person inoculated in England, and probably in

Europe, was her daughter, upon whom the operation was performed in 1721. On the 11th of May following, a son of Dr. Keith, a physician who had visited Miss Wortley, was successfully inoculated. The Princess Caroline of Wales, who had nearly lost one of her daughters, Princess Ann, by smallpox, took great interest in this new operation, and was very solicitous to protect her other children by this means. In order that she might further satisfy herself of its safety and utility, she obtained from the king, her father, the pardon of six criminals, condemned to death at Newgate, on condition that they should submit to inoculation. The operation upon them all was performed in August of the same year. They all made a good recovery, and thus escaped the halter. One of them had the address to conceal that he had previously had the disease. The experiment was again safely tried upon a female convict, and afterwards upon five or six charity children. The princess now consulted the court physician, the celebrated Sir Hans Sloane, respecting the propriety and safety of inoculating her children. Sir Hans being cautious in his reply, the princess inquired if it was his desire to dissuade her from it, and, being answered in the negative, she said, "then I am resolved it shall be done," and directed Sir Hans to wait on the king, George the First. His majesty readily concurring, the Princesses Amelia and Caroline were inoculated in April, 1722. In the year 1724 inoculation was a second time introduced into the royal family. His Royal Highness Prince Frederick, aged 18 years, was

inoculated at the court of Hanover, and his Royal Highness Prince William was inoculated in London, both under the direction of the court physician. Each of the princes went through the disease in the mildest manner, Prince Frederick not having more than eleven or twelve pustules. In the years 1721 and 1722, 182 persons were inoculated in England; in 1723, 292 persons.

The practice of inoculation was at first much opposed, and for a long time Lady Montagu enjoyed the privilege of being the best abused person in England. Nor was the opposition confined to the ignorant. Physicians and divines joined in the outcry against it. Thus Dr. Wagstaffe, a man of high medical standing, remarked, "that posterity will scarcely be brought to believe that an experiment, practised only by a few ignorant women, should so far obtain in one of the politest nations in the world, as to be received into the royal palace." Sermons were preached against "the dangerous and sinful practice of inoculation."

Inoculation was introduced in this country in the year 1721. The learned Dr. Cotton Mather, of Boston, having observed in the *Philosophical Transactions*, printed in London, an account of the operation in Turkey, communicated the information to several physicians in Boston, who treated the subject with contempt. He then recommended his friend, Dr. Boylston, of that city, to adopt the practice. Accordingly, with the little information he could obtain from that publication, and in the face of the most violent opposition, Dr. Boylston inoculated, on the 27th day of

June, 1721, first his only son, about thirteen years of age, and then two negro servants. He was completely successful in all three cases, thus confirming in his own mind his convictions on the subject, and quieting to some extent the fears of others. In the years 1721 and 1722 Dr. Boylston and others inoculated several hundred persons. The degree of odium and persecution which he brought upon himself by this very laudable innovation is almost incredible. He and his family were attacked and execrated in the street and in his own house. Many sober-minded pious people were deliberately of opinion, when he commenced the practice of inoculation, that if any of his patients should die, he ought to be capitally punished. A bill was brought into the legislature for prohibiting the practice under severe penalties, and it actually passed the house of representatives; but some doubts existing in the council, its progress was arrested, and it never became a law. The clergymen in general, however, acted an honorable part, and many of them became zealous advocates of the new practice. The practice of inoculation gradually gained ground, and became general in New England. In a few years it was extended to New York, Philadelphia, and Charleston. By the invitation of Sir Hans Sloane, Dr. Boylston visited London, where he was well received, elected a member of the Royal Society, and introduced into the presence of the royal family.

The efficacy of inoculation in preserving life and preventing deformities was very great. The annual number of deaths in the Inoculation Hospital of

London was only three in a thousand; deaths from natural smallpox, in unprotected persons, average one in three.

But, notwithstanding the beneficial results from inoculation, we have now a much superior expedient in vaccination. This renders a resort to inoculation unnecessary, and, save in exceptional cases, unjustifiable. When, however, no vaccine matter is to be had, and a person is or has recently been exposed to smallpox, inoculation may be proper and prudent, in order that the inoculated and milder form of the disease may get the start of the natural and severer form. A remarkable instance in illustration of this statement is related by Professor Gregory, who had it from a naval surgeon. The smallpox was introduced among the crew of a man-of-war in a tropical climate where no vaccine matter was to be had. Most of the men were unprotected by vaccination. Of sixteen who took the disease in the natural way, nine, or over one-half, died. Three hundred and sixty-three were at once inoculated. Of these not one perished, although the operation was performed under all the disadvantages of a hot climate and want of time to prepare the systems of the patients.

THE DISCOVERY OF VACCINATION.

About three-quarters of a century ago, *Dr. Jenner* made the most interesting discovery in the whole history of medicine—that the eruptive disease which had long been observed as occurring on the udders and teats

of the cow (which he named the *cow-pox*) was directly communicable to the human system, and possessed the power of protecting man from the terrible and fatal pestilence of smallpox. A popular belief was prevalent upon the dairy farms of Gloucestershire, England, that no person who had had the cow-pox could afterwards take the smallpox. Dr. Jenner convinced himself, by inoculating with smallpox matter a number of individuals who had had cow-pox, that this popular notion was not without truth. He continued his experiments and investigations, and at last conceived the happy idea of propagating the cow-pox from one person to another. He thus hoped to finally expel from the world the disfiguring and dangerous malady, smallpox.

The 14th day of May, 1796, was the birthday of vaccination. "On that day, matter was taken from the hand of Sarah Nélmes, who had been infected by her master's cows, and inserted by two superficial incisions into the arms of James Phipps, a healthy boy of about eight years of age. He went through the disease apparently in a regular and satisfactory manner; but the most agitating part of the trial still remained to be performed. It was needful to ascertain whether he was secure from the contagion of smallpox. This point, so full of anxiety to Dr. Jenner, was fairly put to issue on the first of the following July. Variolous matter, immediately taken from a pustule, was carefully inserted by several incisions, but no disease followed."

This glorious discovery was announced to the world in June, 1798, in a pamphlet published by Dr. Jenner.

He had an almost holy reliance in the truth of his investigations, which, he states, he was "encouraged" to prosecute "by the hope of their becoming beneficial to mankind. Many objections were, of course, urged against the practice. Some of them were merely foolish—as, that it was unnatural and impious to engraft the diseases of a brute upon a Christian. Others were untrue—as, that it introduced into the system new, unheard-of, and monstrous disorders distinct from the cow-pox itself. It triumphed over all these evils; and in six years from its first promulgation the discovery was known in every region of the world."

In this country, the discovery was announced in our newspapers, and the *Medical Repository* of New York, in the year 1799. Dr. Benjamin Waterhouse, professor of medicine in the University at Cambridge, vaccinated in July, 1800, four of his own children, the eldest about seven years of age, who thus became the first subjects of vaccination in the United States. Committees were subsequently appointed to collect evidence in regard to the efficiency of cow-pox as a preventive of smallpox, and to report the most eligible method of conducting the practice. In a short time the triumph of vaccination over the most dreaded scourge of the human race became established in both the professional and public mind.

For directions in regard to the manner of vaccinating, and information as to the necessity for revaccination, we refer our readers back to page 242.

By means of vaccination, not only have the lives of many thousands been preserved, but also their good

looks. Historical records, and many portraits of the last portion of the seventeenth and the beginning of the eighteenth centuries, show the fearful ravages committed by the smallpox upon the population. It would seem indeed as if every man had been speckled more or less with "pock holes," and the community must have presented one moving mass of pits and scars.

VACCINATION AFTER SMALLPOX.

We have spoken on page 244 of the importance of revaccination. Some physicians have urged that even those who have had smallpox should be vaccinated; for, although the occurrence of an attack of varioloid in a patient who has once had natural smallpox is very rare, yet when it does happen the attack may be a severe one. From this danger he is protected by vaccination. Prof. Wood, in his work on *Practice of Medicine*, says: "It may be asked whether vaccination should be employed in persons previously affected with smallpox. I should unhesitatingly answer this question in the affirmative. It has been before stated that, though fewer persons are attacked with varioloid after inoculation or natural smallpox than after vaccination, yet a greater number perish. The same protection that a second vaccination extends in one case will probably be extended by vaccination in the other, and is even more needed, at least so far as life is concerned. It is generally stated in the books that vaccination after smallpox produces little or no effect. My own observation has been exactly the reverse. In

concluding this subject, I would again strongly urge the propriety of universal revaccination, as the means not only of promoting the comfort and possibly of saving the life of the individual, but also of preventing the spread of smallpox and of ultimately eradicating it, if not from the globe, at least from extensive communities."

We have, however, said quite sufficient to show the importance of vaccination. Having laid before the reader these facts in regard to the prevention of the disease, we proceed now to give him some information in regard to the disease itself, although, if he properly heed our advice, he will never suffer from it.

CIRCUMSTANCES WHICH FAVOR THE APPEARANCE OF SMALLPOX.

Age exerts an influence upon the liability to an attack. Children are more susceptible to the disease, if unprotected by vaccination, than adults. *Fear* of the disease predisposes the person to an attack. The effects of fear are quite marked during an epidemic of the disease. Those who are timid and anxious will, all other things being equal, be more frequently found among the victims of the malady than those who are calm and self-possessed. The *negro and dark races* are more prone to the invasion of smallpox than the white races. It is also more fatal among negroes than whites. The main cause of smallpox, however, is *contagion;* it passes from person to person, and is thus propagated and perpetuated in the community. An

obscurity hangs over the origin or first cause of smallpox like that which baffles all attempts to arrive at the causes which first gave rise to measles and scarlet fever. At the present time there is every probability that these diseases have no other mode of origin than communication from one person to another. There are some who believe that smallpox, like a number of other maladies, came originally from the lower animals, who imparted it to human beings. It is well known to those acquainted with the diseases of sheep that they are subject to a distemper of the nature of smallpox.

The poisonous material which conveys the disease is given out from the breath and skin of the patient, from his excretions, from the contents of the blisters and sores on his person, and from the scabs. These all contain the specific poison, which may attach itself to the bed and body clothes, *particularly if they be of wool, cotton, or felt.* Woollen, cotton, or felt stuffs not only easily take up the poison, but they retain it for a long time—indeed for very many years.

AT WHAT PERIOD OF THE DISEASE IS THERE THE MOST DANGER FROM CONTAGION?

The poison begins to develop itself in the patient's system, and to rapidly multiply itself, during the primary fever. It is most powerful, and therefore the most dangerous to others, when it is most obvious to the sense of smell, that is, after the eruption has appeared. No person who has not been vaccinated,

or who has not had the smallpox, should be allowed to remain in the same room, or in the same house, with a patient affected with the disease. As it has been caught by passing a child ill of it in the street, the taking of a person affected with it into the public highway is an unpardonable procedure on the part of those having him in charge. There is no contagion so strong as that of smallpox, and none that acts at so great a distance. Even those who have died of the disease continue to communicate it long after death. In this way the disease has not unfrequently been introduced into dissecting-rooms, the infection being communicated to those students who have not actually touched the corpse, but been merely in its neighborhood.

IS THE DISEASE DANGEROUS?

Fully formed confluent smallpox is a very fatal disease. About one person out of every three attacked fails to recover. Distinct smallpox, as it is called, in which the sores are separate and do not run into each other, is not so fatal as the confluent form; but the deaths average one in ten of all attacked. In varioloid, that modified form of smallpox which affects those who have been once vaccinated, but who are not entirely protected in consequence of not having been *re*-vaccinated, only about one or two in the hundred die.

The greatest number of deaths from smallpox occurs among children. It has been ascertained that out of

every one hundred deaths from smallpox, seventy-five occurred in those below the age of five.

In pregnant women the disease is particularly dangerous. It almost always brings on abortion. The fœtus which has thus miscarried is in many cases marked upon the skin with the disease.

THE AFTER-EFFECTS OF SMALLPOX.

It has been observed that scrofula and consumption are apt to follow the disease, even in those cases which have not been specially severe. Blindness and a permanent discharge from the eyes are not unfrequent results. The voice is sometimes very much altered, being rendered disagreeable by injury done by the disease to the soft palate.

Chronic diarrhœa and dropsy, as well as deformities of various organs, are among the to-be-dreaded legacies of smallpox.

HOW TO RECOGNIZE SMALLPOX.

When the disease is fully formed, it is difficult to mistake it for any other complaint. But it is important, for many reasons, to be able to tell it as early as possible in the attack. The disease sets in with a brisk fever; chills, followed by heat and dryness of skin; pain in the stomach; nausea, vomiting, and headache. But these symptoms are very similar to those which usher in a number of other diseases. If they show themselves in a person who is unprotected

by vaccination or a previous attack of the disease, who lives in a neighborhood where the disease is prevalent, and who, in particular, is known to have been especially exposed to the contagion within ten days or a fortnight, then there is good reason to suspect that these symptoms are the forerunners of smallpox, and to act accordingly.

Besides these early symptoms, there are others usually present in smallpox, but which are not common in the early stages of other diseases. Vomiting is one of these. Pain in the back is another. When these symptoms are very violent, they usually introduce a severe form of the disease. The pain in the back is in the centre. It is a *spine-ache*, and not affected by any change of posture; in which respect it differs from lumbago, which, as we have pointed out in treating of rheumatism, is always aggravated by motion. The eruption makes its appearance on the third or fourth day, first on the lips and forehead. On the appearance of the eruption, the fever and muscular pain are relieved.

The diseases with which it is most apt to be confounded are scarlet fever, measles, and chicken-pox. The pain in the back is not one of the symptoms in these affections, and in neither of them is the fever lessened on the appearance of the eruption. Again, the eruption first shows itself, in smallpox, on the lips and forehead; in scarlet fever, first on the neck and chest; in measles, first on the face; in chicken-pox, first on the shoulders and back, afterwards on the scalp, and often spares the face altogether. The character of the

eruption varies in each of these diseases. In scarlet fever, the whole skin is uniformly red, or the redness appears in large patches, with, perhaps, a few raised spots and blisters. In measles, the eruption appears in crescentic patches, with spaces of healthy skin between. In chicken-pox, the eruption appears and disappears in successive crops, and the disease usually runs its course in five or six days, with comparatively little fever.

THE SYMPTOMS OF SMALLPOX.

After the fever, pain in the back, nausea, vomiting, and headache, which we have described as ushering in the disease, the eruption makes its appearance on the third or fourth day. Sometimes there are also thus early in the disease, soreness of the throat, cough, pain in the side, and shortness of breath. In children, it is not unusual to meet with convulsions or fits. The eruption first appears as small red pimples. These pimples, in the course of about a week, inflame, and matter forms in them.

The pimples first show themselves on the lips and forehead, then on the face, neck, and wrists. They next appear on the trunk of the body, and finally on the lower extremities. These pimples begin to soften and are converted into pustules by the ninth day. The pustules then break, and crusts or scabs form. In about four or five days more these scabs begin to fall off.

The manner in which this eruption appears and its

amount determine the severity of the disease. Smallpox is divided into confluent smallpox and distinct smallpox by the nature of the eruption. When the pimples and pustules are not numerous, they remain distinct and separate from each other; hence the disease is known as *distinct smallpox*. When the eruption is very profuse, the pustules, being close together, run into each other and form large blotches; hence the disease is known as *confluent smallpox*. The former is much less dangerous than the latter variety of the affection. The term *malignant* smallpox is applied to very bad forms of the confluent disease. It is almost uniformly fatal.

In distinct smallpox, the *secondary fever*, which sets in about the eleventh day of the disease, and the eighth day of the eruption, is ordinarily quite mild. In confluent smallpox, on the contrary, it is very severe and perilous. It occasionally at once proves fatal, overwhelming the system, as it were, by the force and virulence of the seizure. During its continuance, swelling of different glands, destructive inflammation of the eyes and ears, and severe diseases of the throat and lungs, may make their appearance, so that if the unhappy patient escapes with his life, he may find himself lame, blind, or deaf.

TREATMENT OF SMALLPOX.

As a rule, but few drugs are needed in this disease. None of them shorten its duration nor exert any beneficial influence upon the eruption. Good nursing and

dietetic management can accomplish all that can be done.

In the first place, the object of the sanitary treatment is to prevent a copious eruption. As we have just had occasion to mention, the severity and danger of the attack are in direct proportion to the amount of the eruption. We know that there is a popular belief about an eruption being "better out than in." This is not true of smallpox. In the second place, the strength of the patient should be carefully preserved and supported. In the third place, when any particular organ is attacked, as, for instance, the eye or ear, instant attention must be directed towards its defence by the most approved methods of treatment.

DIET OF THE PATIENT.

This should consist of light nutritious articles, such as sago, arrowroot, gruel, weak beef-tea, and other like preparations, for which we have given the receipts in our chapter on Cookery for the Sick. Ripe fruits, iced lemonade, iced water, cold barley-water, tamarind-water, raspberry-vinegar, and water and broken ice, may all be freely allowed. The principal thing to guard against in the diet of the patient is to prevent his being dosed with heating drinks, which are apt to be urged by officious, ignorant friends for the purpose of bringing out the eruption.

THE CARE OF THE PERSON OF THE PATIENT.

When the skin is much heated, sponging of the surface of the body with warm water will be found very refreshing, particularly if followed by a change of linen. The sick-chamber should be *cool* and well ventilated. The bedclothes should be light and frequently changed. When the patient is long confined to the bed, his back should be frequently examined, in order to prevent the formation of ugly sores. If the scalp be full of pustules, the hair must be cut off to prevent its matting. Indeed, it is good practice, if the disease be recognized early enough, to shave the scalp. Cold may then be applied to the head more readily, if required.

ATTENTION TO THE BOWELS.

If the bowels be confined, they must be daily attended to. If necessary, a dose of castor oil or a bottle of citrate of magnesia may be given. The object is to keep the bowels gently open by the use of a little laxative food or medicine.

TO RELIEVE ITCHING.

The intolerable itching of the skin may be relieved by smearing over it some cold cream or some pure glycerine, or a mixture of equal parts of sweet oil and lime-water, by means of a camel's-hair brush. When the pustules have burst, the application of a dry

powder, such as powdered starch or the oxide of zinc, is frequently made to absorb the matter.

THE SECONDARY FEVER,

Which comes on about the eighth day of the eruption, or the eleventh of the disease, is to be treated by keeping the bowels gently open, and by supporting the system by a generous but digestible diet—such as strong beef-tea, good soup, animal broths, milk and cream, and soft-boiled eggs.

TO PREVENT PITTING.

To preserve the face from the unseemly scars of smallpox, has been an object long diligently pursued by physiologists and physicians. The milder the disease, of course, the easier is this task. The more severe the eruption, the more difficult it becomes.

It has been stated that the contact of the atmospheric air is the cause of the pitting, and that, when it is effectually excluded, there is no danger of a scar. Consequently, many applications have been suggested with this object in view. The various means which are employed by different physicians to prevent pitting may be enumerated as follows:—

1. To open each individual pimple after it has begun to soften.

2. To rub on it, after it has softened and become a pustule, a piece of lunar caustic (nitrate of silver).

3. To employ both methods; that is, to open each

of the little blisters, and pour a strong solution of nitrate of silver (five or ten grains to the ounce) into the cavity of each. This operation should, to be effective, be only employed on the second or third day of the eruption. At the end of a week, it is alleged, scales fall off, and no pit is left. Some, instead of these expedients, paint the whole face with a very strong solution of nitrate of silver, one drachm to the ounce of water.

4. To apply a mercurial plaster, which, at the Children's Hospital in Paris, is made by mixing twenty-five parts of blue ointment with ten parts of yellow wax and six parts of black pitch. This plaster should be cut into pieces to fit the different parts of the face, one for the cheeks, one for the sides and back of the nose, one for the forehead, and others for the upper and lower lips.

5. To apply blue ointment directly, either pure or rubbed down with an equal amount of lard. This ointment is spread upon a piece of thick muslin, which is then cut into the shape of a mask, with holes for the eyes, nose, and mouth. It is fastened in its place by means of pieces of tape sewn around the edges, which are tied behind the head and neck. It is very important that the ointment should be kept in constant close contact with every part of the face. To accomplish this, a separate piece is used for the nose, which is the feature the most difficult to fit. As a rule, four or five days are long enough to keep on this mask.

6. To apply sulphur ointment several times a day.

7. To apply an ointment of calamine and sweet oil, which is made as follows:—

> Take of—
> Common calamine, three parts.
> Oxide of zinc, one part. Mix.
> Rub in a mortar with sufficient sweet oil to form a thick adhesive crust when applied to the skin.

This application is to be preferred to that of the mercurial plasters or ointment, because there is no danger of salivation; and to the use of nitrate of silver, because of the pain of the latter.

8. To apply tincture of iodine by means of a brush.

9. To apply a saturated solution of gutta-percha in chloroform (Liquor gutta-percha). This application is especially serviceable, as it completely excludes the air. It is to be put on as soon as the eruption is fully out.

10. Collodion, which we have described on page 528, may also be used.

11. To smear the face over with sweet oil. The objection to the use of this and other oils and ointments is that they are apt to be rubbed off by the patient, and leave the face exposed.

12. The method we are about to mention is one of the most recent which has been suggested. It has been extensively tried, and with the best results. We recommend it as preferable to many of the other expedients which we have just recorded. The latest views of the cause of pitting of smallpox, and which account for the pitting of the face while the rest of

the body escapes, are that the mischief is done not only by the air, but by the light. The object, therefore, is to exclude both light and air. To do this, we want a soothing application, one which will allay itching. For this purpose the following ointment has been recommended, which can be made in any household: Mix either butter, free from salt, or fresh lard, or simple cerate, with sufficient charcoal to make a thick dark paste. Apply this freely upon the face. It will exclude both light and air. The patient must be watched, and the ointment renewed whenever rubbed off.

13. An English physician, within a few weeks of the time we write, has suggested the use of cotton-wool to prevent pitting. The idea occurred to him when watching a photographer using cotton-wool to shut out the light in the process of "vignetting" photographs. He has treated several cases by this method, without leaving a vestige of marks. His procedure is as follows: On the first appearance of the eruption, patches of skin of about an inch square are washed over with *collodion*, and immediately covered with a *thin* uniform layer of fine wool. The wool readily adheres if applied before the ether of the collodion evaporates. When the whole of the face or other part to be protected is thus covered, the wool is to be brushed over with a solution of starch or gum. The starch or gum is occasionally to be reapplied to the edges of the wool, to prevent any shifting by the movements of the face. This covering is to be kept on until the dry crusts fall off the other parts of the body.

THE MODERN TREATMENT

Of smallpox is a great improvement, both in reference to the safety and comfort of the patient, over that which was formerly in vogue, when blisters, heating remedies, warm rooms and wraps were employed. A prince of the royal blood of England (John, the son of Edward the Second) was treated for smallpox by being put into a bed surrounded with red hangings, covered with red blankets and a red counterpane, his throat gargled with mulberry-wine, and the red juice of pomegranates given him to suck. This was the boasted prescription of John of Gaddesden, who took no small credit to himself for bringing his royal patient safely through the disease.

REGULATIONS PROPER DURING AN EPIDEMIC OF SMALLPOX.

Every once in a while the community, through neglect of the practice of vaccination and *revaccination*, is visited by an epidemic of smallpox, which recalls, though faintly, the ravages of this dreaded malady before inoculation and vaccination were known. The following instructions for controlling the contagion, we think, deserve a place here for reference in such an emergency. They were carefully prepared by an able body of physicians for recent adoption by the Board of Health of the City of Lowell.

ISOLATION.

1. Persons attacked with smallpox or varioloid, and all infected clothing of the same, must be immediately separated from all other persons liable to contract or communicate the disease.

2. Nurses, and all the infected clothing of such persons, must be treated as in quarantine.

3. None but nurses and the attending physicians will be allowed access to persons sick with smallpox or varioloid.

4. Patients must not leave the premises until they, together with the bed and clothing, have been disinfected, and permission given by some physician.

DISINFECTION.

1. All bedding and personal clothing infected with the smallpox contagion, which can, without injury, must be washed in boiling water.

2. Infected featherbeds, pillows, and hair-mattresses must have their contents taken out and thoroughly fumigated, and the ticks washed in boiling water.

3. Infected straw and excelsior mattresses must have their contents removed and buried, and the ticks washed in boiling water.

4. Infected blankets, sheets, and pillow-cases, and all articles in contact with or used by the patient, must be washed in boiling water.

5. Personal clothing and bedding, particularly com-

forters, which cannot be wet without injury, must be disinfected by baking or by fumigation.

6. Instead of using boiling water as the disinfectant, the following chemical process with cold water may sometimes be conveniently substituted: Dissolve in a wash-tub, containing eight gallons of cold water, one pound of the hyposulphite of soda, immerse all the articles of clothing and bedding used by or around the patient, and, when thoroughly saturated, add half a pint of sulphuric acid, first diluting it with one gallon of water; stir the whole and allow the clothes to soak an hour, then wring them out, rinse three times in cold water, and hang out to dry.

7. Disinfection of houses, clothing, and bedding by fumigation may be effected by filling the closed rooms with the fumes of sulphuric acid or of chlorine gas. The first can be accomplished by putting half a pound of sulphur in an iron dish, pouring on a little alcohol and igniting it, thereby causing the sulphur to burn and give off sulphurous acid fumes. The second can be accomplished by moistening with water four pounds of chloride of lime, contained in an earthen or wooden vessel, and adding thereto a pint of muriatic acid, to liberate the chlorine gas. Clothing and bedding, to be well fumigated, must be separated as much as possible, and hung upon the walls and furniture of the room, so that everything will be thoroughly permeated. The rooms should be kept closed an hour or two after being charged with gas by either method, and then thoroughly ventilated. No attempt should

be made to fumigate the sick-room in this manner while it is occupied by the patient.

8. On the recovery, removal, or death of every case of smallpox or varioloid, the clothing, bedding, and premises will be disinfected in accordance with the above rules, under the direction of one or more physicians.

9. The physicians employed in disinfecting may cause the removal, destruction, or burial of such infected bedding and clothing as may, in their judgment, seem to require it, of which they shall keep a correct record, with date, kind of article, whether new or old, estimated value, name and residence of the owner.

10. The sick-room should be kept well ventilated, with such precautions as not to expose the patient to direct currents of air, and should be occasionally fumigated, slightly, by throwing upon a heated surface a few teaspoonsful of a *solution of carbolic acid*, made by dissolving one ounce of crystallized carbolic acid in a quart of rain-water. Pieces of cloth may be soaked in this solution and suspended in the room, also in the hall-ways adjoining. All vessels for receiving discharges of any kind from patients must be emptied immediately after use, and cleansed with boiling water. When convalescence has taken place, the patient must be thoroughly washed in warm water and soap, and put on fresh clean clothes throughout.

11. Privies, water-closets, garbage-tubs, water-pipes, and all kinds of drains and foul places in houses,

stables, and yards, may be disinfected with a solution made as follows: Dissolve eight pounds of copperas (sulphate of iron) in five gallons of water, add one quart of the solution of carbolic acid, and mix well.

12. It should be remembered that there are no substitutes for pure air and water. Let fresh air and sunlight purify every place they can reach; open and dry all cellars; keep the grounds about dwellings dry and clean, and let personal and domestic cleanliness be everywhere observed.

VARIOLOID.

This is a modified form of smallpox which attacks those who have been vaccinated, but so long ago that the protection has nearly exhausted itself. Although the vaccination, in these cases, has proved ineffective to prevent the disease, it exerts a marked influence in modifying its action and rendering it much milder. The danger of varioloid may be entirely averted by that proper attention to *re*-vaccination which on a previous page we have urged.

In varioloid the disease is of a much shorter duration. There is no secondary fever, and the life of the patient is not often endangered. Neither are the effects of the disease as severe as in natural smallpox —there being usually but little marking, and rarely any affection of the eyes or ears.

Milk-sickness.

This disease is peculiar to the Southern and Western States of our Union. It prevails largely in the valleys and caves among the mountains of Kentucky, Tennessee, North Carolina, Georgia, and in Illinois and other Western States.

This singular affection never attacks man directly. It is always derived from the lower animals, by eating the flesh of herbivorous cattle, or using the milk or butter obtained from them. Besides man, other carnivorous animals derive it from the flesh of herbivorous animals. The disease appears first, therefore, always in the herbivorous classes, the flesh and secretions of which act as a medium for its transfer to flesh-eating animals. It is most frequently met with in the cow and horse.

Prof. Samuel H. Dickson, of the Jefferson Medical College, Philadelphia, in an interesting article on milk-sickness, says:—

"It derives its name from the fact that, when occurring in the human subject, it is most frequently met with as the consequence of eating milk rendered poisonous by the diseased condition of the cow from which it was taken. Butter made from such milk is still more acrid, and the flesh of the animal, even when cooked, more strongly poisonous than either. It is fortunate that the localities in which it resides are capable of being defined accurately. Such places are often kept carefully fenced in from the intrusion of cattle, whose milk is then unhesitatingly used.

The beautiful valley of Jocassa, in the neighborhood of the White-water Falls, in the upper part of South Carolina, was one of these spots, and cattle were not allowed to range beyond certain well-known limits. The cultivation of soil, which has been known to produce it, seems to deprive it of this deleterious quality. If animals be kept within their inclosures till late in the afternoon, when the dew is entirely exhaled, and driven home early in the evening, it is said they escape injury, even if allowed to feed within the known limits of this poison. It usually affects animals as a chronic disease, but sometimes attacks with great violence and rapidly proves fatal. My guide to the cascade above mentioned informed me that a valuable horse, belonging to a neighbor, which had strayed upon the dangerous ground and fallen sick, died before he could cross the mountain and return. He had gone to bring a dose of bear's oil, considered there a specific, and lost no time, but was too late to save the life of the poor creature. The incapacity to bear exercise is said to be so complete a sign of the malady, that the owners af cattle give them a hard drive before killing them; this excites the disease infallibly if latent in the system."

DISCOVERY OF THE CAUSE OF MILK-SICKNESS.

Attempts for many years have been made to discover the cause of this very curious affection. The legislature of Illinois offered some years ago a very large

reward to the man who should make the fortunate discovery.

Dr. O. A. Battson, of Claremont, Illinois, claims that he has established, by a series of extended experiments, the fact that *white snakeroot* (*Eupatorium ageratoides*) is the plant which, when eaten by herbivorous animals, occasions milk-sickness.

White snakeroot is an indigenous plant, which flowers in August and September, and continues in bloom until frost. When in bloom, it is liked by animals, which eat of it freely. It resembles, when young, in May, June, and July, the nettle. It is a branching plant, smooth, three feet high, with broadly ovate leaves, which are pointed with sharp thorns or teeth. When the ground is stirred and ploughed where the plant grows, it is said to die; it may, therefore, be exterminated by cultivation.

Dr. Sawyer, of Hillsboro', Illinois, published an article on the cause and effects of milk-sickness in the *Philadelphia Medical and Surgical Reporter* for March 30, 1867, in which he attributes the disease to this same plant. He asserts that the "herbivorous animals known to be susceptible to the poison are the horse, ox, and sheep; the carnivorous are the dog, cat, wolf, and their species. Those unsusceptible are the hog and deer. Fowls of all kinds are susceptible, not excepting the buzzard."

DURATION OF THE DISEASE.

From the genuine disease, it is asserted that animals never *entirely* recover. Fifteen years after the attack, the least over-exertion, particularly when the weather is warm, has been known to cause muscular weakness and trembling. Dr. Sawyer says: "It frequently happens that drovers purchase cattle which have recovered from an attack of this disease, and are apparently healthy; but should they at any time over-fatigue them, it will quickly be discovered, for down they go wherever they may be; and unless they are fed all the corn (best green) they can eat, more or less will die; corn seeming to have the same happy effect with them, in the cure of the disease, that quinine has with man in the cure of the ague. The following case, one of the many occurring during the year, is an illustration: During the fall of 1865, a drover wishing to reach a certain place where he could stop with his cattle for the night, and being somewhat behind time, urged his drove to a quicker pace. In a short time, to his great astonishment, almost at the same moment, twelve of the best and fattest steers fell out of the ranks, trembling and staggering until they fell to the ground, when he was obliged to abandon them to the care of a brother farmer. This occurred within three miles of town. I saw the cattle a few days afterwards, and would defy any one to detect the slightest symptom of disease by simply looking at them, for they were apparently as healthy as any of their two hundred associates."

Man recovers from the disease somewhat more rapidly and thoroughly than animals. But complete recovery in his case, after a well-marked genuine attack, is the exception rather than the rule. He remains for a long time, even for life, subject to dyspeptic troubles, and to nausea and vomiting after any unusual exertion, especially in warm weather.

SYMPTOMS OF MILK-SICKNESS.

Nausea and vomiting, with pain and burning in the stomach, are the earliest symptoms which follow the feelings of languor and indisposition to mental or physical effort ushering in the disease. A peculiar odor, it is asserted, is given off from the body. The skin is hot and dry, and the eyes are red and glassy. The thirst is always very great. After the disease is well established, it resembles in many of its features typhus fever.

TREATMENT.

In some places there is a prejudice in favor of bear's oil, as mentioned by Dr. Dickson. This oil is used both upon animals and the human subject. In any case its effects may be tried. Other oils—sweet oil, for example—will doubtless also be found of service. Either of these oils may be taken freely. It is hard to move the bowels in this affection, not only because of the obstinacy of the constipation, but also because of the difficulty of keeping upon the stomach for any time a sufficient dose of a purgative.

As soon as possible after the deleterious food is taken, an emetic of warm water and mustard or salt should be given. Leeches may then be applied over the stomach, and pieces of ice or cold water given internally. The bowels are then to be moved with castor oil internally, or by means of a purgative injection. The patient during recovery should wear warm clothing, and avoid exposing himself in any way to the weather. Fatigue of every sort must be guarded against, as well as improper food.

CHAPTER VII.

DISEASES OF THE ORGANS OF BREATHING.

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treatment of consumption—Cod-liver oil—Iodine—Arsenic—Counter-irritation—How to relieve the cough—How to check the night-sweats—How to stop the bleeding from the lungs—The treatment of the diarrhœa—Use of domestic plants in the disease—Treatment by the standard domestic remedies.

Cold in the Head.

THIS is a very common affection. Few or no persons escape it altogether.

The *causes* of this disease are numerous. We all know, probably, from our own experience, that it frequently arises from exposure to a draft or to the night air, from wet and cold feet, from suddenly passing out from a warm room into the cold air without the necessary precautions, from sleeping between damp sheets, from the wetting received in an unexpected shower, and from a variety of similar influences. But this is not all: frequently the whole community is attacked. The temperature suddenly rises or falls to a considerable extent, and at once there are great numbers of persons with "cold in the head." It is not merely a change from heat to cold which does the mischief. This is the commonly received theory, and therefore most prudent persons sedulously protect themselves from effects of an alternation from a warm to a cool air. Few know that a sudden transition from cold to heat is almost equally dangerous. Thus, it is on record that in St. Petersburg, upon a very cold winter night in 1782, the thermometer quickly rose thirty degrees. Not less than forty thousand people had cold in the head on the next morning. The prevalence of certain winds in particular locali-

ties is known to favor the development of this trouble, whether the wind be cold or warm, dry or moist. In England, the southeast wind, which has a peculiar haziness, exerts this pernicious influence.

IS IT EVER CONTAGIOUS?

When cold in the head is widely extended and severe, when it becomes an epidemic from any of the causes we have mentioned, it is known under the name of *influenza*. By some medical writers this form of the disease is said to be contagious. And many cases of its invasion which have been described would seem to support this view.

But influenza often pervades large tracts of country with a suddenness and power too marked to be accounted for altogether upon the grounds of contagion. Contagion is evidently not the only way by which the disease may be extended. In the year 1833 there was a remarkable invasion of a large portion of England by this disease. On the 3d of April in that year nearly all in London were smitten by it. On the same day, the English ship Stag came up the channel and arrived on the Devonshire coast, all on board at that time being well. In half an hour afterwards, the breeze being easterly and from the shore, forty men were down with the influenza; by six o'clock the number was increased to sixty, and by two o'clock the next day to one hundred and sixty. On the evening of the same day, a regiment was on duty at Portsmouth, in a perfectly healthy state. By the

next morning so many soldiers were sick with influenza that garrison duty could not be performed.

These cases of influenza are more severe than ordinary attacks of cold in the head. They are attended with more decided constitutional symptoms and with great prostration of the strength. The suddenness of the invasion and the extent and rapidity of the movements of influenza are sometimes remarkable. The influenza of 1781–82 first appeared in China, it thence passed rapidly through Asia into Europe, and visited our own shores in the following year.

DURATION OF AN ATTACK OF COLD IN THE HEAD.

In its simple and ordinary form, the disease abates its violence in three or four days. The accompanying fever, which is often very slight, reaches its highest point on the third or fourth day, and in about a week's time all the symptoms are usually at an end.

In persons in good health, the disease commonly passes away without leaving any after-effects. It is never directly fatal, although it may occasion indirectly loss of life by starting into activity some other and more serious affection, such as inflammation of the lungs, bronchitis, and even consumption. The tendency to consumption is not unfrequently, in those predisposed to the disease, awakened by an attack of cold in the head. It is apt also, in those liable to these maladies, to be complicated with rheumatic affections of the joints, and with neuralgic pains. In old persons and in infants the course of the attack should

be carefully watched. In the very aged it may give rise to inflammation of the bronchial tubes and air-cells, which may result in suffocation. In very young infants it may lead to the same complications, or occasion a serious attack of croup. In pregnant women the disease sometimes brings on a miscarriage.

THE SYMPTOMS OF COLD IN THE HEAD.

A "cold," as it is termed in common parlance, first shows itself in unusual dryness of the nostril, which seems stuffed up. There is difficulty in breathing through the nose, not because there is anything in the nostrils, but because the lining membrane is swollen. There is heaviness of the head, and some aching of the face and jaws. The sense of smell is perverted or lost; the nose is unusually sensitive to the contact of air; that which is cool or impure readily excites sneezing. The eyes become red, and tears flow over the cheeks. With these early symptoms there is apt to be slight shivering or chilliness, and a little fever. The pulse, particularly in the evening, beats a little more frequently in the minute than is usual. The lining membrane of the nose is at first dry, as we have mentioned; soon, however, it begins to secrete a thin discharge, which, flowing over the wings of the nose and the upper lip, irritates them, and renders them sore. After a little while this discharge gets thicker, and becomes opaque and yellow. In a short time the swelling of the lining membrane of the nose lessens, the discharge first becomes natural in *quality* and then

in *quantity*, and the patient is well. This is the usual course of a simple uncomplicated case of *cold in the head.*

Not unfrequently, however, this cold in the head is associated with a cough, pain in the limbs, and considerable fever. Then we have what is known as *catarrhal fever.* The discharge from the nostrils, in these cases, is soon followed by a sense of rawness in the throat, an uneasy tickling, and tendency to cough. In the language of Prof. Dickson, "The cough is rough and painful, and at first dry and hoarse as is the voice; but after a while a tenacious mucus is expectorated, which, becoming thicker and thicker, assumes the color and appearance of pus, its discharge being attended with relief. The pulse is frequent and rather hard, but not very full; the skin hot and dry; the tongue white and furred. Pains in the back and limbs, and aching as if in the very bones, often exceedingly distressing, render motion annoying; and the patient complains of stiffness in the joints, with more or less languor and debility. There is also, for the most part, an inordinate and unaccountable gloom, and dejection of the spirits. Rush quotes an invalid under his care as saying that the fever not only deserved the familiar name of 'break-bone,' but should be called the 'heart-break' also. The fever is distinctly of the continued type, reaching its acme about the third or fourth day, and running an average course of about a week. The height of the exacerbation is usually in the evening, when all the symptoms above detailed are apt to be aggravated."

TREATMENT OF COLD IN THE HEAD.

It is in most cases quite easy to avert a threatened attack of a cold. Upon the first appearance of the premonitory symptoms, such as dryness and stuffing of the nostrils, a tendency to sneeze, a fulness and heaviness of the forehead, just above the eyes and nose, and the other feelings which are usually readily recognized as the forerunners of the attack, no time should be lost. The patient should go at once to bed, and take a ten-grain dose of Dover's powder, or a tablespoonful of paregoric, or the febrifuge recommended among the standard domestic remedies. The warmth of the bedclothing, and the sleep induced by the action of the remedy, will dissipate in a few hours the gathering noxious influences. These precautions must be taken early, in advance, as it were, of the attack. If carefully followed, they will almost invariably abort it or cut it short.

If it be too late to hope for success from this method of procedure, and the cold in the head be already established, then the patient should confine himself to his room, if he be at all delicate, for a few days. He must keep the head and feet warm, and take hot drinks frequently during the day. He should use linen pocket-handkerchiefs, not those of cotton or silk, and change them frequently. In addition, if necessary, he may smear the upper lip with a pleasant salve, to protect it from the acrid discharge from the nostrils.

In infants at the breast, the nostrils are to be kept

clean by syringing them with warm water. If they have any difficulty in suckling, in consequence of the closed condition of the nose, they must be fed by the spoon or bottle so long as this obstacle continues.

THE DRY PLAN OF CURE.

A method of cure of cold in the head has been recommended by Dr. C. J. B. Williams, and highly extolled. It is known as the *dry* plan of cure. It certainly has the merit of simplicity, for it consists merely in abstinence from water and every kind of drink. No fluids, or next to none, are to be swallowed until the disorder is gone. The principle of this treatment lies in the cutting off of the supply of watery materials to the blood. The wants of the system exhaust from the circulating fluid all that can be spared for the natural evacuations, and there is nothing left to feed the unnatural secretion from the inflamed lining membrane of the nostrils. Its minute vessels cease to be swollen; the morbid flow is diverted, and the inflammation starved away. This is the theory. Habitual topers might find the remedy to be worse than the disease; but Dr. Williams asserts that the necessary privation is not very hard to bear, and that it achieves a cure, upon an average, in forty-eight hours. He allows, without recommending, a tablespoonful of tea or milk for the morning and evening meals, and a wineglassful of water at bedtime.

A great advantage of this plan of treatment is that it does not require confinement to bed, nor even to the

house. The man whose business calls him abroad, may, with proper clothing, pursue his customary employment, and his cure is all the time going on. Indeed, exercise, as it promotes perspiration, helps on the recovery.

The system of administering warm drinks and agents to excite perspiration, renders the body more susceptible to atmospheric changes. In order that this system of treatment by warm drinks may be properly carried out, and without danger, many restrictions are needed which are often inconvenient. The dry plan of cure has, therefore, certainly the great advantage over all others in point of convenience. It must be put in force at the very commencement of the disorder.

When the patient is at all exhausted by the disease, tonics are, of course, needed. A few days' holiday in the country or at the seaside is of great benefit.

Rose Cold, or Hay Asthma.

This peculiar disease only attacks some persons. The majority of people are not affected by it, even when exposed to the causes which excite it in those who are susceptible.

It appears at the time of hay-making, and is caused by the inhalation of the aroma of spring grass and hay. The same complaint is produced in some persons by the odor of powdered ipecacuanha, and in others by that of strawberries.

Those who are liable to it, escape altogether if they avoid meadows and bog-fields, and the neighborhood of hay-stacks. Going to the seaside during haying-time, therefore, particularly to those parts of the coast that are barren of grass, is a sure means of avoiding the disease. When this cannot be done, the trouble may be escaped by remaining within doors, and shutting out as much as possible the external air during the hay crop.

Some persons are remarkably susceptible to the odor of hay, and find it very difficult to avoid exposure to it. The following case, which rests on excellent authority, is an illustration of a number of similar instances we might present of this singular liability to an attack. One lady, who suffered annually from this strange affection, states that an attack has been brought on by the approach of her children who had been in the hay-field. Once this happened when the hay harvest had been for some time over, upon their joining her at tea, after playing in a barn in which the

hay of that year had been deposited. She was in the habit of flying to the sea-coast as the dangerous season came on. On one occasion, while walking on the shore, she was suddenly attacked by the complaint, to her great surprise, as she was not aware of any grass being in the neighborhood; but the next day she discovered that hay-making was in progress upon the top of the cliff at the time she was walking under it. In another year, after an attack she had suffered had quite subsided, and all the hay-making was over, she was suddenly visited by the well-known symptoms, and, on going into her bedchamber, perceived that they were building a large stack of hay in a yard near the house, having transferred it from a field five miles distant.

SYMPTOMS OF THE DISEASE.

These may be described as a combination of those which attend an ordinary cold in the head, already described, and those of asthma, which we shall shortly enumerate. The patient, therefore, has redness of the eyes, sneezing and a discharge from the nose, a dry, harassing cough, and attacks of difficulty in breathing, giving rise to the most distressing sensations of impending suffocation.

THE TREATMENT

Of hay asthma is easy if the patient can remove himself from the influence of the cause of the disease, but very difficult if he must continue exposed to it.

Without medical treatment it usually runs a course of three or four weeks.

It is not in the power of every one to leave home to escape this disease each year. Therefore the natural inquiry of the unfortunates is, what can we do to preserve our systems against the pernicious effects of these, to us, poisonous aromas?

The *cold shower-bath* is recommended as one of the best agents for fortifying the system against the attack. A combination of *quinine and iron* is often effectual in emancipating patients from this troublesome disorder. The following prescription may be given:—

Take of—
Quinine, forty grains.
Sulphate of iron, twenty grains.
Syrup, sufficient to make a mass.
Divide into twenty pills and take one three times a day.

The antiperiodic we recommend among the Standard Domestic Remedies is also a very valuable medicine, taken twice or three times a day.

In some cases the odor of *chlorinated lime or soda* exerts a control over the vegetable emanations which excite hay asthma. The following experiment may be tried. Place saucers of chlorinated lime in the bedchambers, or have rags dipped in Labarraque's solution and hang them about the house. Or, pour some of the same solution in the water of the washbasin and wash the hands and face with it night and morning, being careful of the eyes. A small bottle of

Labarraque's solution may be carried about on the person and inhaled from every now and then.

A most excellent preventive and remedy against this vexatious disorder is found in *arsenic*. About two drops of Fowler's solution, taken in water, after each meal, will be followed, in many instances, by the most wonderful and speedy success.

The use of a good *respirator* over the mouth and nose is sometimes an efficient safeguard.

During the attack, Dr. Tanner says there is "no agent more valuable than tobacco; inasmuch as directly the nausea and collapse caused by smoking set in, the sense of suffocation will pass of, and the patient be enabled to forget his sufferings in sleep."

Cold on the Breast, or Bronchitis.

The cold in the head which we have just described is very apt to travel downwards into the lungs, and then we have a *cold on the breast;* or, as it is sometimes called in common language from one of the most prominent symptoms, *a cough*, in medical language *bronchitis.*

It is not contagious, and in middle life an uncomplicated attack is not dangerous. In young children and old persons the disease is always attended with more or less danger.

The *duration* of cold on the breast varies. It may get well in a few hours or in a few days, passing away with the cold weather which ushered it in. In other instances it lasts a long time, weary weeks and months, and may then lay the foundation of other formidable diseases of the chest which may destroy the patient. It usually, in favorable cases, begins to decline between the fourth and the eighth day. In old persons it not unfrequently returns every winter, or lasts, with some intermissions, during the whole year.

HOW TO RECOGNIZE IT.

The chief *symptoms* may be briefly summed up as follows: more or less fever; a feeling of tightness or constriction about the chest and of soreness behind the breastbone; hurried breathing, sometimes with wheezing; severe cough, and an expectoration at first viscid and glairy, but afterwards thick and often

greenish. The quantity of matter expectorated varies greatly. In some cases it is quite slight, in others it amounts to half a pint or a pint in the twenty-four hours. Very young or old patients sometimes actually die suffocated from the immense quantity which is suddenly poured out, causing obstruction of the air-tubes of the lungs. The pulse is frequent and perhaps weak; the tongue is foul; and there is headache, lassitude, sickness, and anxiety or depression of spirits.

THE TREATMENT OF COLD ON THE BREAST.

When the symptoms first appear, when hoarseness of the voice and a tendency to cough are first observed, the whole trouble may be at once subdued in a healthy person by the administration at bedtime of ten grains of Dover's powder, taken with a glass of hot lemonade; or, by giving five grains of carbonate of ammonia, or ten grains of sal ammoniac. If the appetite be unimpaired, a full supper, followed by a hot drink, will often dissipate all the symptoms of a cold at the outset. Natural sleep will supervene, and the morning ought to find the patient well.

If these remedies are delayed too long to be of service, then the two objects to be aimed at in the treatment are to keep up a free action of the skin by inducing copious perspiration, and to act freely upon the kidneys.

To properly carry out this treatment, the patient should be confined to his bed. It is well for every

delicate person, especially one who is predisposed by family taint to consumption, to take always to his bed when an attack of cold on the chest has established itself with any severity.

A good mixture for acting upon the skin and kidneys, and to relieve the inflammation of the bronchial tubes, is the following:—

Take of—
Wine of antimony, one and one-half fluidrachms.
Sweet spirits of nitre, one-half fluidounce.
Spirits of mindererus, three and one-half fluidounces.
Brown mixture, four fluidounces. Mix.

Of this a tablespoonful should be taken every third or fourth hour. The bowels are to be kept open by a dose of three grains of blue mass at night, followed by a Seidlitz powder or a bottle of the solution of citrate of magnesia in the morning.

Or, instead of the above, the following mixture may be given:—

Take of—
Wine of ipecacuanha, two fluidrachms.
Paregoric, one fluidounce.
Neutral mixture, four fluidounces.
Syrup, one fluidounce. Mix.

Of this the dose is a tablespoonful three times a day.

When there is much fever, or when the patient complains of considerable soreness or pain in the chest, a mustard plaster may be applied over the

breastbone. Or, some soap liniment or turpentine liniment, or a mixture of both, may be rubbed well over the chest.

In the case of a child, the mustard plaster must be a weak one—say one part of mustard to four of Indian-meal. If the child be a feeble one and much exhausted by the disease, fifteen drops of brandy in milk may be given three times a day, to an infant two or three years old, together with the following mixture:—

Take of—
Carbonate of ammonia, sixteen grains.
Hoffman's anodyne, one and one-half fluidrachms.
Syrup of tolu,
Water, of each, one fluidounce. Mix.
Give a teaspoonful every two hours, to a child one or two years old.

For very young children with cold in the chest the following liniment is sometimes used as being preferable to mustard poultices:—

Take of—
Powdered camphor, half an ounce.
Rub it up well with two teaspoonsful of spirits of turpentine and a half tumblerful of sweet oil.

Saturate a piece of flannel with this liniment and apply it to the child's breast, covering it with a piece of oiled silk, paper, or muslin, and confining it with a bandage.

A child with this disease must be carefully watched. It should not be allowed to remain too long in one posture. *Never suffer it to lie in one position more than*

two hours. Serious consequences may result from a neglect of this rule.

In old persons a more stimulating treatment is required. Besides the attention to the skin and kidneys we have directed, mustard plasters, not too strong, should be applied to the chest, and a wine-glassful of the decoction of senega given every four or six hours. On the first appearance of any sign of debility, give the patient, besides a nourishing diet, wine-whey to drink.

A teaspoonful of syrup of squills in a teacupful of barley-water is useful, taken several times in the day.

The inhalation of the vapor of steam is often beneficial in cold in the chest. This mode of treatment is frequently unsatisfactory, because of the difficulty of getting an appropriate apparatus, one large enough to hold a sufficient volume of water. To overcome this difficulty, the following arrangement has been suggested: Get a large globular glass flask, about eight inches in diameter, made so as to receive boiling water without breaking. Into the wide mouth of this flask put a closely-fitting cork. Through this cork pass one glass tube nearly to the bottom of the vessel, and another tube which descends only a short distance below the under surface of the cork. Then attach a rubber tube to the latter, and furnish it with a mouth-piece. Through this flexible mouth-piece the inhalation is made in the same manner as an Eastern uses a *nargilé* for smoking through water.

The patient will make a much quicker and surer recovery, as well as be made much more comfortable,

if the air which he breathes be impregnated with moisture. To keep the air moist, pour boiling water in several large flat dishes, which are to be placed near the bed. The air of the room should be kept at about a temperature of 65° to 68°.

If there be much fever, *the febrifuge* we recommend among the standard domestic remedies should be administered. Its use, together with *the expectorant* of the same series, will be usually all the medication required.

Chronic Catarrh of the Chest.

This affection is very apt to follow an attack of cold in the chest, if the latter be improperly cared for, or if the patient exposes himself too much during the disease or convalescence. The medical term for chronic catarrh is chronic bronchitis.

Age has an influence upon this affection; it is much more common in advanced than in early life. Most of the cases of "winter cough" in old people are instances of chronic catarrh of a low, lingering form.

The disease is not contagious. It may arise directly from exposure; or, as is more commonly the case, it is the consequence of a cold in the chest imperfectly recovered from.

It is not usually a dangerous affection. It rarely causes death itself, but sometimes occasions loss of life indirectly by leading to other diseases.

The main *symptoms* are an habitual cough, some shortness of breath, and a more or less copious expectoration. These symptoms are all made worse by any exposure to damp, cold weather, or by any excesses in the mode of living.

THE TREATMENT

Of chronic catarrh consists mainly in the use of stimulating expectorants, and the avoidance of the exciting and aggravating causes of the disease.

One of the best of the stimulating expectorants is

sal ammoniac (muriate of ammonia). The following prescription may be given:—

> Take of—
> Sal ammoniac, two drachms.
> Brown mixture, three fluidounces. Mix.

Of this mixture take a dessertspoonful (two teaspoonsful) three times a day. It will be noticed that each dose contains ten grains of sal ammoniac. The best results are obtained from giving the remedy in this dose; it is perfectly harmless, and any smaller dose is nearly useless. For a child, of course, the dose of this prescription, like that of all others, is to be reduced in accordance with the rules for proportioning children's doses, given on page 549.

The expectorant we recommend among the standard domestic remedies contains sal ammoniac, very nicely combined. It will be found a most efficacious preparation.

Counter-irritation by means of mustard plasters, stimulating liniments (soap liniment, ammonia liniment, etc.), and turpentine stupes applied to the chest walls, is beneficial. Blisters are also often of great service.

The covering of the chest with a large warming plaster does, in many cases, great good, after the above-named remedies have been used for a while.

Persons affected with chronic catarrh, who have made considerable progress in the journey of life, require measures which will tend to invigorate the

general system. A change of climate, when possible, is the best of these. The use of concentrated, easily-digested food is imperatively demanded. The patient must live well.

The following stimulating application to the chest is much used in some of the English hospitals, and is highly recommended in chronic catarrh:—

Take of—
Spirits of turpentine, a wineglassful.
Vinegar, a teaspoonful.
Yelk of egg, one.
Rose-water, a wineglassful.
Oil of lemon, a teaspoonful. Mix.

This mixture is to be rubbed, morning and evening, not only over the chest before and behind, but along the sides of the neck. It generally reddens the skin and produces small pimples.

In *protracted catarrh of the aged*, remedies which act upon the kidneys are of great value. The following formulas are of much service in a variety of cases of senile chronic catarrh:—

Take of—
Nitrate of potash, sixteen grains.
Sweet spirits of nitre,
Honey of squills, of each, one fluidounce.
Decoction of senega, four fluidounces. Mix.
Give a tablespoonful three times a day.

Or,

Take of—
Acetate of potash, half an ounce.
Vinegar of squills,
Sweet spirits of nitre, of each, one fluidounce.
Paregoric, half a fluidounce.
Spirits of mindererus, three fluidounces.
Syrup of orange-peel, one-half fluidounce. Mix.
Give a tablespoonful three times a day.

A useful mixture to be taken *when the expectoration is very thick and tenacious*, in order to thin it, is the following:—

Take of—
Carbonate of potash, half an ounce.
Wine of ipecacuanha, two fluidrachms.
Paregoric,
Syrup of tolu, of each one and one-half fluidounces. Mix.
Give a teaspoonful three times a day.

Or, the following, which is especially useful when the *patient is weak* and needs a tonic:—

Take of—
Carbonate of soda, one drachm.
Sal ammoniac, two drachms.
Fluid extract of gentian, six fluidrachms.
Fluid extract of henbane, two fluidrachms.
Syrup of tolu, two fluidounces. Mix.
Take a dessertspoonful three times a day.

The inhalation of the vapor of tar is often of great advantage. For this reason, many patients are benefited by keeping one or two shallow dishes filled with tar-water in their bedchambers.

Pleurisy.

This is the name given to an inflammation of the delicate membrane which covers the lungs and lines the interior of the chest. The disease is a common and well-known one.

Exposure to cold, particularly to drafts of air, is one of the most frequent causes of pleurisy. It is more generally met with in winter and spring than at any other season of the year. The more unsettled the weather and the more sudden the changes in the temperature, the greater the number of cases in the community.

Simple pleurisy, occurring in one side of the chest of a person whose lungs are not diseased, is not a fatal affection. It almost always terminates favorably if properly treated. But when pleurisy comes on in the course of Bright's disease, or when there is tubercular disease of the lung, the result may be serious.

An attack of pleurisy may terminate in a few days, but usually lasts a week or ten days, while sometimes many months elapse before the patient is well.

SYMPTOMS.

The first sign is usually a sharp pain or stitch in the side, more frequently the right than the left. It is generally situated just below the nipple, is of a dragging, shooting character, and is greatly increased by coughing, taking a long breath, or lying on the affected side. The patient is apt to carry himself

bent over towards the painful side. The breathing is short and restrained, because of the pain attending it. There is a short, harsh cough, the skin is hot and dry, and the cheeks are flushed. The signs of fever, however, in mild cases, are very slight, and may escape detection. In fact, it not unfrequently happens that a person passes through an attack of pleurisy without knowing that he has had it. These attacks, however, though unnoticed at the time, often leave behind them ill effects. The neglected inflamed membrane contracts adhesions which give rise to more or less trouble and pain in breathing for months or years. In severe cases of this hidden pleurisy, in which there is no pain, cough, nor shortness of breath which excites particular attention, the disease may go on to such an extent as to fill one side of the chest with fluid. This stealthy character of the invasion is quite rare, the disease usually showing itself early by the sharp pain, cough, and fever we have mentioned.

TREATMENT.

Enveloping the side of the chest in a very large and very hot flaxseed-meal poultice, prepared and applied as directed on page 519, is an excellent mode of treatment, and will often check the disease at once. In addition, the patient should take ten grains of Dover's powder, or a dose of *the febrifuge* of the Standard Domestic Remedies, at bedtime. To relieve the cough, give every few hours a teaspoonful of pare-

goric, with half a teaspoonful of sweet spirits of nitre, in a half wineglassful of water.

The patient must be kept warm and quiet in bed, and forbidden to talk, as conversation irritates by the friction it occasions of the inflamed part.

When the pain has ceased for some days, but the oppression in breathing continues, then the application of a few small blisters to the affected side of the chest is serviceable, and tends to prevent dropsy of the chest, which is one of the consequences to be most feared of an attack of pleurisy. Instead of blisters, the side of the chest may be painted twice a day with a mixture of equal parts of tincture of iodine and alcohol, or mustard plasters may be applied.

Inflammation of the Lungs.

Inflammation of the lungs, or lung fever, or, in medical language, pneumonia, is a much more serious affair than inflammation of the membrane covering them (pleurisy), which we have just been considering.

The general prevalence of this affection, and the fact that it opens a large and familiar outlet to life, render a knowledge of its nature and treatment of much interest. During our late civil war, the death-rate in both armies from this disease was very high.

In pneumonia, the actual substance or true tissue of the lungs is inflamed. Sometimes one lung is attacked, sometimes, in about one case out of five, both, constituting double pneumonia. The right lung is the one more frequently selected by this disease.

THE CIRCUMSTANCES UNDER WHICH IT APPEARS.

Inflammation of the lungs assails all ages, but is comparatively rare before five years of age. It acquires very great frequency between twenty and thirty. After sixty years of age it is one of the most common and fatal of diseases.

Sex is supposed to exert an influence in the development of the disease, as more men than women are affected. But this difference is more apparent than real. It is probably due altogether to the fact that in the ordinary vocations of life men are more exposed to vicissitudes of temperature and to cold and moisture, the main causes of the disease, than women.

The disease prevails, as a rule, more extensively during the spring and late winter months than at any other season of the year.

Pneumonia is not contagious. Its most common cause is exposure to cold, aided by dampness.

The *duration* of the disease varies very greatly in different cases. Taking it in all its forms, a case usually terminates, favorably or unfavorably, between the seventh and twentieth day.

HOW TO RECOGNIZE IT.

Pneumonia is not unfrequently ushered in by an attack of cold in the chest, which, instead of progressing to recovery, lights up inflammation of the lung-structure. Frequently, wandering pains in the limbs and chest, loss of appetite, and general debility precede, for several days, any definite attack. In old persons a dull pain about the nipple is often complained of several days before other symptoms appear.

The attack usually comes on with a marked chill, or a creeping may last for several hours or during a night and repeat itself once or twice during the first and second days. This chill is in old persons almost invariably the first symptom noticed. When the chill passes away, the patient is left hot and flushed, with shortness of breath, and a feeling of weight and oppression somewhere in the chest. This sense of uneasiness soon increases to a dull, heavy pain.

The disease being established, the patient is restless and uneasy. He breathes rapidly, but with pain and

difficulty. His cough, which is of an anxious and unsatisfactory character, is at first dry, but afterwards attended with expectoration of a rusty color streaked with blood.

A patch of deep red on one or both cheeks is very constantly present during the early stages of inflammation of the lungs. This peculiar flushing of the cheek is so characteristic that it enables the experienced eye to tell from it alone of the existence of the disease. When one cheek only is flushed, it does not follow that the lung of the same side is the affected one; it is quite as likely that the opposite is the diseased one.

The expectorated matter in pneumonia is quite peculiar. It presents an appearance unlike the expectoration in any other disease of the lungs. This is caused by the more or less amount of blood which is mixed with it. Sometimes the color resembles closely that of iron-rust, with specks like those of brick-dust on the surface. Often it is of a brownish-yellow hue, like tobacco-juice, and in severe cases it frequently looks like licorice or prune juice.

When the pain in the lungs is severe, patients generally lie upon the back or else upon the affected side. When the greater part of one or both lungs is solidified by the disease, occasioning much embarrassment of the breathing, the patient prefers to lie on the back with the head and shoulders raised.

As the patient gets better, the expectoration loses its peculiar appearance, increases in quantity, and is raised more easily. The breathing is relieved, and

the number of respirations in the minute lessened. The fever passes away, and the skin becomes cool and moist. The appetite returns, and flesh and strength are rapidly regained.

When the case proceeds to a fatal termination, the breathing is quickened, the patient gasps for air, the face becomes pale, the surface of the body cold and clammy, the expectoration thinner and of a darker color, or stops altogether, the strength rapidly fails, there is low delirium or loss of consciousness, and death ensues from suffocation.

THE TREATMENT

Of inflammation of the lungs requires not a single but many agents, varying with the peculiarities of the case. For instance, in some cases but little medical interference is required, careful nursing, a well-regulated diet, and supporting or stimulating drinks being all that is needed. In other cases the most active stimulant is called for to prevent the patient from sinking, and, in some, low diet and depressing remedies are demanded. The cases calling for these diverse methods of treatment we shall endeavor to designate as we proceed.

Attention must first be paid to the bowels. A dose of castor oil or of citrate of magnesia, or of the *cathartic* of the Standard Domestic Remedies, is to be administered, if needed. The patient is to be kept perfectly quiet in bed. The air of the room requires looking after. It should be kept moist by the evapo-

ration of boiling water, and the temperature should not be allowed to fall lower than 65°.

The affected side is to be enveloped in large hot poultices of flaxseed, mashed potatoes, or corn-meal, covered, of course, by oiled silk, paper, or muslin, to confine the warmth and moisture. These poultices should be carefully made in accordance with the directions given on page 519, and when renewed should be immediately replaced by the fresh poultice, in order that the skin shall not be exposed for a moment. Instead of the poultices, some physicians employ cotton-batting, plentifully padded over the affected side of the chest. If the pain be severe, turpentine stupes may be applied night and morning.

The well-known English physician, Dr. Chambers, is a strong advocate of the use of the poultice in this disease. He prefers that made of flaxseed-meal, because it keeps moist the longest. It should be spread half an inch thick on a piece of cloth or flannel, broad enough to extend all around the chest, and deep enough to extend from the collar-bones to the lower margin of the ribs. Cover the poultice with a thin piece of gauze, which is to be stitched in at the sides. Lay the patient on it on his back, and fold it across the front until it meets. In adults this jacket poultice will usually keep its place of its own accord; but in children there should be a tape sewed on in front, and a tape behind, which can be tied over each shoulder in the manner of a shoulder-strap, as otherwise the little prisoners wriggle out of their soft breastplates. When

once this poultice is in position, it is to be kept there, and not removed until a hot one is ready to go on.

It is of the utmost importance that quiet of body and mind should be secured for the patient during the whole course of the illness. A neglect of this occasions many a fatal result.

The *diet* should be light, but nutritious. Milk is to be given from the first, and a plentiful supply of cold water. As the disease advances, strong beef-tea and concentrated animal broths are to be administered.

If the patient be delicate, or if his strength is rapidly failing, wine and even brandy or whiskey are to be given. These, however, should never be looked upon as taking the place of food. They are merely stimulants, which it is necessary sometimes to administer, but the necessity for the use of which is to be prevented, if possible, by nourishing food.

There are few patients at the present day who require, or indeed can bear, a lowering treatment in this disease. Bloodletting and a low diet are rarely proper, and it is never safe to resort to them excepting under intelligent medical advice. Most cases of lung fever do best under a generous restorative system of food and drugs.

When the crisis of the disease occurs by diarrhœa or sweating, it must not be unnecessarily checked. During recovery, particular attention must be paid to the diet, in order that it may be as nourishing and as easily digested as possible.

In some very severe cases, the only question, as Dr. Tanner well says, is how to keep the patient alive,

until the exuded matter, occupying the air-cells and tubes, becomes absorbed. Under these circumstances brandy is invaluable, and is to be administered freely, even in some instances to the extent of a dessert-spoonful or tablespoonful, in water or milk, every hour or two for several days. The essence of beef in these cases (for receipt, see page 492) will prove of service. In comparatively few cases, however, is such active stimulation as this required.

When the patient is feeble, a very pleasant draft is made by dissolving in one wineglassful of water a scruple of carbonate of ammonia, and in another a scruple of citric acid, and then mixing the two in a tumbler and drinking while frothing.

The following mixture is a serviceable one for allaying the cough and lessening the congestion of the lungs:—

Take of—
Bicarbonate of potash, two drachms.
Syrup of gum Arabic, three fluidounces. Mix.
A dessertspoonful in water is to be taken four, six, or eight times in the twenty-four hours.

During the latter period of the disease, and during convalescence, a most excellent tonic is quinine, a two-grain powder or pill of which should be given three or four times a day; or, still better, *the tonic* of the Standard Domestic Remedies administered.

TREATMENT OF INFLAMMATION OF THE LUNGS IN CHILDREN.

The little patient must be kept in bed, in a room of a temperature of about 65°, and with the air kept moist by the evaporation of boiling water. The diet should be milk during the height of the fever; as the skin cools, good beef-tea is to be given, and a simple mixture like the following:—

Take of—
Citrate of potash, one scruple.
Syrup of orange-peel, two fluidounces.
Water, sufficient to make two fluidounces. Mix.

The dose is one or two teaspoonsful three or four times a day.

The poultice-jacket is of course to be worn, but neither blisters nor bloodletting are to be resorted to.

Asthma.

This is one of the most persistent and obstinate diseases of which we have any knowledge. Relief may often be had from the severity of the affection, but a cure is difficult to obtain, as many an asthmatic patient bears unwilling witness.

Age exerts, apparently, little influence on the development of this disease. It occurs at all periods of life, from early infancy to extreme old age. It has been noticed in infants only fourteen days old. Many of the best-marked and most persistent cases date from such an early period of life, that it is difficult to say whether the disease was not born with the patient. Indeed, there is little doubt that it is frequently hereditary, and sometimes transmitted through several generations. When not hereditary, it usually appears between thirty and forty years of age; when hereditary, it is most apt to show itself about the age of puberty.

Sex is a predisposing cause, for the disease is more common among males than females. According to some authorities, eight patients out of ten are males.

The *previous health* has also an influence, for many attacks are connected with a gouty or rheumatic state of the system. The connection of asthma with a gouty constitution is quite marked. In many instances both gout and asthma can be traced in the same family, the members being alternately subject to the one and the other disease. It has also been noticed that when women are the subjects of asthma,

gout prevails in their families in a larger proportion than in those of men.

The *season of the year and weather* are among the circumstances which predispose to it. An attack is most apt to appear in the spring or autumn months, and after exposure to cold and wet.

The influence of *particular atmospheres and climates* is well known, but not readily accounted for. Why should one asthmatic be unable to sleep in a smoky and dirty city, while another can live in comfort nowhere else? Why should the noxious close atmosphere of a crowded room or ship's cabin be the balmiest of airs to some asthmatics, who are only easy when breathing it, while to others a single inhalation of such depraved air will bring on a severe asthmatic seizure?

The *diet* has sometimes much to do with bringing on an attack. Full meals and late suppers, particularly if the food be unusual or indigestible, are perilous to those predisposed to the disease.

A connection between violent exercise by running, walking, singing, or leaping; fatigue of the voice by singing or talking; electrical conditions of the atmosphere, as in thunderstorms; and attacks of asthma, has been noticed.

EFFECTS OF THE DISEASE.

Death rarely or never results directly from asthma. No matter how nearly suffocated in an attack the patient may appear, he will quite certainly recover his

breath. The symptoms of impending suffocation, though prominent, and painful to witness by one unaccustomed to seeing them, need, therefore, excite no alarm. There is a common opinion that asthmatic people enjoy better general health and live longer than others. If this be true, it may be accounted for perhaps on the ground that they are obliged to take better care of themselves than most of us, any indiscretion producing a painful attack. In many instances, however, the disease, although it does not curtail life, lessens materially the pleasure of living and impairs the general health, weakening the muscles, destroying the tone of the digestive organs, and emaciating the body.

The duration of a fit of asthma varies from a few minutes to several hours. It not uncommonly lasts during a whole night, sometimes several days or weeks. Patients sometimes get well entirely of the disease, but, as a rule, one who had a single fit of asthma will have others at intervals during life.

THE SYMPTOMS

Of asthma are easily recognized.

A fit of asthma usually comes on in the evening, just after getting into bed and before going to sleep; but also often in the early morning, between three and six o'clock. The attack is sometimes attended or preceded by neuralgic pains, disturbances of the stomach, nausea and vomiting, or a loose, griping stool. The characteristic wheezing generally commences while

the patient is yet asleep. He is aroused by it, and obliged to sit up in bed. He is unable to bear the weight of the bedclothes or the pressure of anything tight around his chest. He seeks fresh air, and assumes various positions to aid him in his attempts to fill the lungs. The shoulders are heaving convulsively, the eyes staring, and the countenance anxious. The patient looks as if he were dying. He is either irritated by his condition or distressed by it, and imploring with his eyes relief from his severe sufferings. The cough is generally loud and frequent, though sometimes low and husky, and in others suppressed entirely, in consequence of the great debility of the patient. In these latter cases the suffering is of course more acute. Gradually some expectoration appears, and a temporary abatement occurs in all the symptoms. The patient may then fall asleep, only again perhaps to be awakened by a renewal of the struggle in all its first severity.

The approach of a fit is sometimes announced from afar, often it arrives without any warning. The precursory symptoms, when present, vary with different persons. The patient soon learns to recognize them, and to prepare for the coming event. Some suffer from a severe headache in advance of the asthmatic seizure. In others, eruptions present on the skin lessen or disappear. In some instances, just before the attack, the patient is warned by the huskiness of his throat. Strange to say, some attacks of asthma are ushered in a day or two in advance by great buoyancy of the spirits. Unusual mental activity and obstinate

wakefulness are in some premonitory of an attack. Itching under the chin is a common forerunner of an approaching fit. This itching is constant, of a peculiar creeping character, and unrelieved by scratching. Sometimes it extends over the breastbone and between the shoulders. It appears ordinarily the first moment that tightness of breathing is felt, and subsides as the fit passes off.

THE TREATMENT

Of asthma naturally divides itself into treatment of the fit, and the treatment which should be instituted during the intervals in order to correct the constitutional state which every now and then culminates in an asthmatic fit.

THE MANAGEMENT OF THE FIT OF ASTHMA.

During the attack, the objects aimed at are a palliation of the suffering, and the shortening of it. When the stomach is filled with undigested food, an emetic (a teaspoonful each of salt and mustard in a tumbler of warm water) will be of service; when the bowels are overloaded, an injection is to be given. For the relief of the spasmodic breathing quite a number of remedies are in use, some of which succeed in certain cases. That which benefits one asthmatic patient often has no effect upon another. Among the remedies we are about to mention, almost every patient can find one at least which we think will prove a friend in time of need. First we will mention

Nitre-paper Fumes.—This affords much relief in many cases of asthma. Frequently this remedy fails of effect because the nitre-paper is not properly prepared. The following directions should be noted: Dissolve in some water all the nitre (saltpetre) it will take up; then take some ordinary red blotting-paper, dip it into this concentrated solution, and allow it to dry. When wanted for use, set it on fire in an open vessel, covered with a newspaper made into a cone, so that the fumes may be inhaled. Or, it may be burned in an earthenware dish, and the fumes allowed to diffuse themselves throughout the room.

The following formula, for the preparation of a paper to be burnt for the relief of asthma, is recommended upon good French authority as superior to the ordinary nitre-paper. The asthmatic patient may get it made for him by his apothecary, and keep it on hand for use:—

Take four ounces of white paper, and allow it to macerate in warm water until reduced to a uniform paste. Then press out the greater portion of water, and mix the residue in a mortar with the following powder: Nitre, 2 ounces; myrrh and olibanum, of each, 2½ drachms; belladonna, stramonium, and digitalis, of each, 10 grains. When a uniform mass has been formed, roll out into sheets a line or so thick; dry, and cut into strips.

This paper is said to burn less quickly than the ordinary nitre-paper, and to be more effective.

Strong coffee is sometimes of great service in averting or relieving a fit of asthma, made of the strength of two ounces of Mocha to the cup.

Dr. Monell has recently strongly recommended

forced breathing for the relief of asthmatic seizures. The directions to be observed are as follows:—

The patient is to expel from his lungs all the air it is possible for him to, and not to draw any in until it is found absolutely necessary. Then the inspiration is to be carried to its fullest extent, extending the lungs to their utmost capacity, and the air retained for many seconds. This act of forced expiration, holding the breath, then of thorough inspiration, and again holding the breath, is to be continued for some fifteen minutes, when it will be found that the fit is relieved. It requires great exertion on the part of the patient to perform this act. The first attempt at holding the breath with the lungs filled with air, will cause the patient to think he cannot continue it, but perseverance will soon delight him with relief from the spasm.

Thorn-apple (Jimson-weed) is an excellent remedy in some cases. A few whiffs from a pipe filled with it or from a cigar, act like a charm on certain patients. Unfortunately, in many instances it is almost worthless. The drug must be gotten good, and it should be known that the seeds are much more powerful than the cut up leaves and stalk.

Chloroform has been employed with success in a number of cases to relieve the attack; in some, however, it has been found to do harm. It is not a safe remedy out of the hands of an experienced physician, as death may readily ensue from careless administration. It should not be self-prescribed or self-administered.

Ether is much safer than chloroform, and often quite as effective. Moreover, it does not nauseate the patient like the prolonged use of chloroform does. It is frequently very agreeable to the asthmatic. It should never be inhaled to complete insensibility. A handkerchief or sponge may be partially wet with it and the vapor inhaled by the patient carrying it near to the mouth and nose. There is then no danger, for so soon as the slightest unconsciousness comes on the hand falls, and the handkerchief or sponge drops from it.

Tobacco, to those unaccustomed to smoking, by the nausea it produces, affords relief. It should be smoked in a pipe when a fit seems impending.

Lobelia, an American plant, known also under the names of Indian or wild tobacco, poke-weed, and asthma-weed, enjoys a high reputation in the treatment of asthma. Twenty or thirty drops of the tincture may be given every half hour during the fit, until nausea is produced or the breathing relieved. Instead of the tincture, the powder may be used in doses of five or ten grains.

Hoffmann's anodyne is an old and approved remedy. Thirty drops may be taken in water every half hour during the attack. Or, it may be combined with lobelia, as follows:—

Take of—
Tincture of lobelia,
Hoffmann's anodyne,
Syrup of tolu, of each, one fluidounce. Mix.

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Of this mixture the dose is a teaspoonful, in water, every half hour during the fit, until some effect is produced on the breathing. Then it is to be given every hour or two.

When the familiar symptoms which forewarn the patient of the coming on of a fit are noticed, it may be prevented by swallowing a pill of a quarter of a grain or half a grain of the extract of thorn-apple (stramonium) just before sleeping.

The above remedies have all reference to the treatment of the fits. We will now give some information in regard to what is to be done during the intervals, to prevent a recurrence of the attacks.

THE TREATMENT DURING THE INTERVALS.

The patient must avoid whatever he has found by experience disturbs his general health. He must look out for his digestive organs, and be temperate in all things. He should avoid those localities and those odors which, he has observed, do him harm. The daily use of the shower-bath has been strongly advised as a practice calculated to fortify the system against the attacks.

The *diet* is particularly important. It is perhaps not too much to say that most cases are under the control of well-regulated dietetic management. Many physicians regard the dietetic treatment as the only certain one for asthma. "More is to be done for asthmatic patients on the side of the stomach than in any other direction."

An English physician, Dr. Pridham, has been exceedingly successful in treating asthma by means of a strict dietetic management, together with the use of sedatives, etc. His plan of treatment is about as follows:—

First, correct the condition of the bowels by the following pill at bedtime, succeeded by a dose of citrate of magnesia, cream of tartar, or Epsom salts in the morning:—

Take of—
Aloes with myrrh, three grains.
Blue mass, one grain.
Extract of dandelion, two grains.
Extract of thorn-apple, one-half grain. Mix.
Divide into two pills. Take one as above directed.

Or, take the following pill every other night, and on the next morning a dose of cream of tartar or citrate of magnesia:—

Take of—
Blue mass, four grains.
Powdered ipecac, one grain. Mix.
For one pill.

After having followed the above line of treatment for ten days, and gotten the bowels and secretions in a healthy state, then the strict dietary system is to be commenced.

The diet must be regularly weighed out, and adhered to with the greatest strictness, the hours of meals being most rigidly fixed as follows:—

Breakfast at *eight* A.M.; to consist of half a pint of

green tea or coffee, with a little cream, and two ounces of dry stale bread.

Dinner at *one* P.M.; to consist of two ounces of fresh beef or mutton, without fat or skin, and two ounces of dry stale bread or well-boiled rice.

Supper at *seven* P.M.; to consist of two ounces of meat as before, with two ounces of dry stale bread.

The patient must not drink any fluid whatever, within one hour *before* his dinner or supper, and not until three hours *after* either of these meals. At other times he need not limit himself as to drinks, excepting to avoid all malt liquors. Soda-water may be indulged in at all times when thirsty.

Together with this dietetic treatment, the following sedatives are to be given:—

One grain of the extract of hemlock is to be taken four times a day—namely, at the hours of seven, twelve, five, and ten. The dose may be gradually increased to two grains four times a day.

The extract of Indian hemp may be combined with the hemlock, one-fourth of a grain being added to each dose of the latter.

It is said that under this treatment the distressing symptoms may be expected to subside in a few days. After the restricted diet has been persevered in for at least a month, two ounces more of meat may be permitted, if the digestion is found to be sufficient. Care must be taken that the stomach be not called upon to do more than it can accomplish. The powers of digestion are known to be recovering when the stomach craves for food as the hour of nourishment

arrives. As flesh is gained, strength improves. The patient is thus encouraged to persevere, particularly if, as ought to be the case, he can sleep six or seven hours at a time or lie in bed all night.

If these results follow this dietetic treatment, the ultimate cure of the disease may be looked for; but it may at the same time be taken for granted that the asthmatic cannot without danger eat and drink like other people. It is only by the exercise of self-denial that the patient has it in his power to live a life of comparative ease and comfort.

But many people have not the resolution to carry out these directions and persevere in them for at least six months, and others fear that by so doing they will injure their constitution. In view of this difficulty, and the fact that asthmatics are generally dyspeptics, Dr. Hyde Salter has laid down the following simple rule in regard to diet, which all can observe without much sacrifice. Let no food be taken after such a time in the day as will allow digestion being completed or the stomach being empty before going to bed. The time when the last solid food should be taken will depend upon what the bedtime is. If ten or half-past ten, no solid food should be taken later than four or five o'clock in the afternoon.

Dr. Salter's dietary in cases of asthma is something as follows: *Breakfast*—A breakfastcup of bread and milk, an egg or a mutton-chop, or some cold chicken or game. Tea is better than coffee, and milk and water better than either. *Dinner*—Mutton ought to be the staple diet, beef or lamb rarely, pork or veal

never. Juicy vegetables or potatoes may be eaten, and a little plain pudding or stewed fruit, or fruit out of a tart, should conclude the dinner. Water is the best fluid to drink, and there should be no cheese and no dessert. As the amount of food eaten should be small, it ought to be plain, simple, and nutritious in character.

Either of these dietetic modes of treatment, Dr. Pridham's or Dr. Salter's, may be adopted by the patient. We have seen, in our own practice, the best effects, even in severe cases, from a steady perseverance in a well-regulated course of diet.

Exercise in the open air is of much importance to the asthmatic patient, but it should never be carried to the point of fatigue, and no great physical exertion is to be made within three hours after taking animal food. The utmost regularity must be observed in all the habits and functions of the body—and, if possible, both body and mind are to be kept at rest for an hour after each meal.

A medicine recently recommended in asthma is worthy of trial in all cases. In some instances it works wonders. This medicine is *iodide of potassium*. It may be taken in five-grain doses, in syrup and water, three times a day. Or, the following formula may be employed:—

Take of—
Iodide of potassium, one and one-half drachm.
Aromatic spirits of ammonia, one and one-half fluidounce.
Tincture of belladonna, two fluidrachms.
Huxham's tincture of bark, one and one-half fluidounce. Mix.
Take a teaspoonful, in a wineglassful of water, three times a day.

The alterative recommended in the chapter on Standard Domestic Remedies will be found a most excellent prescription in the intervals between the attacks.

The details in regard to the treatment of the asthmatic fit, and of the intervals between the seizures, which we have just given, cannot, in our opinion, fail to be of benefit to every asthmatic patient.

Consumption of the Lungs.

Of no disease, probably, is there greater dread in the public mind of America than of consumption. The word suggests an incurable condition; it recalls to the memory of almost every reader the sufferings and death of more than one related by the ties of friendship or of consanguinity. Who of us have not suffered in our hearts, if not our homes, from the ravages of this relentless foe of modern life? who of us have not reason to fear its attacks upon those dear to us? Some who read these pages doubtless tremble for their own safety, and put the anxious inquiry, What shall I do to escape the sad fate which, like the sword of Damocles, seems suspended above and about to fall upon me? Others, conscious that the disease has already obtained a foothold, desire to lessen their sufferings and prolong their lives. We write in the hope that some of the facts and counsels in regard to the nature, origin, prevention, and cure of this affection, which we are about to record, may prove of service to the reader, whether his fears are for himself or for those about him.

DEFINITIONS.

Consumption of the lungs, or pulmonary consumption, is generally spoken of by physicians under the name of phthisis, or tubercular phthisis, or phthisis pulmonalis, or tuberculosis of the lungs. We shall only employ throughout this article, as we have else-

where in the book, the common name. Consumption of the lungs may be defined as the growth or the exudation into the lungs of a peculiar material, in the form of small masses, or tubercles, as they are technically called. These tubercles undergo various changes in the lungs, and their presence is preceded by, and associated with, the signs and symptoms of scrofula.

Consumption is a scrofulous disease of the lungs, as we pointed out in treating of scrofula in a previous chapter. It can only affect those with a scrofulous taint of the system; it is merely a form of scrofula in which the lungs are principally and most conspicuously affected; it is a fragment of a great constitutional malady; it is *not*, therefore, exclusively a lung disease.

THE CIRCUMSTANCES UNDER WHICH IT APPEARS.

Influence of Age.—No age seems to be exempt from this scourge. Children are less apt to be affected by it than adults, for with them scrofulous disease shows itself in the various forms of external scrofula which we have described in our chapter on the subject. At and after the age of puberty, consumption is the most common form of scrofulous disease. The age at which consumption most prevails is from the period of puberty to the thirty-fifth year. On the average, the disease appears a year and a half earlier in the female than in the male sex. The greatest number of deaths occur between the ages of 20 and 30.

Influence of Sex.—Women are more liable to con-

sumption than men. The difference between the sexes, in regard to the number of cases, varies in different localities. In those communities in which the trade and occupations of the men are favorable to its development, the disease finds more victims among the male than the female sex. It is probably true, as has been said, that in the upper ranks of society there are more females than males attacked, owing to the more impressive variations of dress; but in the lower classes the male patients are more numerous, in consequence of their more frequent and severe exposure.

Influence of Inheritance.—This is very marked. The disease is largely a hereditary one, being transmitted from parents to children, often through many generations. When both parents have died of consumption, most life insurance companies will refuse the risk of the applicant under thirty-five or forty years of age, no matter what the apparent condition of his health. At forty, one-half of the danger of the inherited predisposition breaking out is said to be passed; and at fifty, three-fourths or four-fifths of the danger is gone. After sixty, there is little or no doubt but that the individual who has escaped thus far will die of some other affection, no matter how many of his family may have perished from consumption.

Influence of Climate.—In our article on the distribution of disease in the United States (see page 638) we pointed out that consumption was most fatal in New England, where about one-fifth of the inhabitants perish from this disease; that in the upper Atlantic States, south of New England, the disease is very

prevalent, but to a less degree than in the latter district of country, and that as a warmer climate is approached the liability to the disease lessens; that the Pacific States and territories are no more exempt from it than those on the Atlantic coast; that in the lofty plateau between the Cascade, Sierra Nevada, and Rocky Mountain ranges the disease is almost unknown; and that in some parts of the Central States there is a less tendency to the disease, on account of the dryer condition of the air than near the sea-coast. For more particular information in regard to the influence of the different climates of the United States on this and other diseases, we refer our reader back to pages 638 and 657.

Influence of Occupation.—As Dr. Watson asserts in his work on Practice, statistical researches which elucidate the influence of different trades and occupations in calling consumption into existence are of great interest. Much curious information on this point has been brought together by Sir James Clark. There are certain occupations which appear to provoke pulmonary consumption by the direct application of irritating substances to the lungs themselves. There are others which tend indirectly to bring on consumption by lowering the tone of the general health, by producing debility and a disordered condition of the system. These two causes often go together in the same occupation, hand in hand, and it is difficult to say to which the mischief is most due. The workmen whose employments have a directly irritating operation upon the respiratory organs are stone-

masons, miners, coal-heavers, flax-dressers, brass and steel polishers, metal-grinders, needle-pointers, and many others who, of necessity, inhale during their labor an atmosphere loaded with irritating particles of matter. But then, most of these men work also in towns, and remain for many hours, day after day, in a bent or constrained position, in a crowded, ill-ventilated, and impure room. Many of these occupations being sedentary and requiring no great muscular power, are unfortunately selected, on this account, by persons who are naturally feeble and delicate. On the other hand, butchers, fishermen and their families, and farm-servants are said to be comparatively free from consumption. This exemption has been ascribed to the use of animal food by these classes; but much of their better health is also due, without doubt, to their habits of active exercise in the open air, and to the circumstance that such employments demand a certain amount of bodily strength and vigor, which prevents their being adopted by weak and scrofulous persons. Independently of these sources of fallacy, we know beyond all doubt that there are certain occupations which tend to produce disease of the lungs. Thus, the fork-grinders of Sheffield die before they are thirty-two years old, of pulmonary complaints. Razor-grinders, who, unlike fork-grinders, grind wet and dry, live a little longer, the moisture diminishing the number of floating particles of the metal. Table-knife-grinders work on wet stones, and attain the age of forty or fifty. Employments of this nature should,

of course, be avoided by all those who inherit or show any tendency to scrofulous diseases.

Influence of Diet.—A scanty and insufficient diet, particularly one deficient in fat, is unfavorable for those predisposed to consumption. The withdrawal of milk, so rich in nutritious elements, from the table of children as they approach the age of puberty, it has been asserted, on good medical authority, is one of the most common causes of consumption. Certainly, children and young people should be encouraged to take freely at meal-times of fresh milk, than which there is no more nutritious fluid known to us. To the prevalence at one time in New England of the mischievous doctrines of vegetarians many cases of scrofulous diseases of the lungs have been ascribed. The person who has any taint of scrofula in his system requires, of all others, a varied and nourishing diet.

IS CONSUMPTION CONTAGIOUS?

In another work* we have stated that "the bed of a consumptive, it is well known, is a powerful source of contagion. In Italy it is the custom to destroy, after death, the bedclothing of consumptive patients. Tubercular disease has, within the past few years, been transferred from men to animals by inoculation. Authentic cases are upon record of young robust girls, of healthy parentage, marrying men affected with

* The Physical Life of Woman: Advice to the Maiden, Wife, and Mother, p. 73.

consumption, acquiring the disease in a short time, and dying, in some instances, before their husbands. In these significant cases the sickly emanations have apparently been communicated during sleep."

The opinion that consumption is sometimes communicated through the influence of contagion is gaining ground in the profession. Many physicians still deny it; but it is curious to notice that most of those who refuse to admit that the disease is at all contagious caution their patients and pupils against too much and unnecessary exposure. Thus Sir Thomas Watson, of England, while asserting that he does not believe the affection to be contagious, adds, "I should dissuade the occupation of the same bed, or even of the same sleeping apartment, by two persons, one of whom was known to labor under pulmonary consumption." Again, Dr. Fuller, while not admitting any contagious quality in the disease, says, "It behooves the physician to warn the patient's friends of the dangers incident to long-continued attendance on him, especially if the disease be in an advanced stage. It would be the height of imprudence for a healthy person, and especially if young and of a scrofulous constitution, to sleep in the same bed, or even in the same apartment, with a consumptive patient, for, although the malady might not be communicated directly from one to the other, unless possibly under the condition of some tubercular matter being accidentally introduced into his air-passages or into some other part of his system, the surroundings and the air would be calculated to predispose him to the disease."

Dr. Villemin, the distinguished physician of the Hôpital Val-de-Grace, of Paris, suggests "that besides the direct transmission, consumption may be contracted through indirect means, by clothes, bed-linen, water-closets, the vitiated air of rooms lived in by tuberculous persons, etc. The possible transmissibility of the disease in this manner merits the attention of medical officers of the army. A consumptive soldier dies in the hospital, and his clothes are returned to his company and worn by another: may not this be one source of consumption in the army? The barrack is to the soldier in the production of consumption what the regimental stable is to the horse in the development of farcy, the contagion and transmissibility of which are at length accepted."

The reader has in the above text the opinions of some of the most prominent members of the profession. He will notice that even those who do not accept the belief in the contagion of consumption give the same cautions against prolonged exposure to the disease as the contagionists do.

THE MORTALITY OF CONSUMPTION.

In the temperate zone, where the civilized portions of mankind are located, *one-tenth* of the inhabitants die of this malady. It would seem as if the artificial habits of civilization developed a tendency to scrofula, particularly of the lungs. Among soldiers the disease seems to be still more fatal than among civilians. It produces nearly *one-half* of the whole mortality of

the dragoon-guards, England. In our own army, during the second year of the late civil war, nine men out of every thousand of the mean strength of the army died of consumption; out of every three cases of the disease one proved fatal within the year. These army returns omit the large number of soldiers annually invalided because of scrofulous disease of the lungs, the greater part of whom died soon after their discharge. In the French army the deaths from consumption are rather less than in the British army. The mortality from consumption is three times greater in our Northern than in our Southern States.

HOW LONG IT LASTS.

The ordinary duration of a case of consumption varies from six months to two years. It is rare for it to prove fatal in less than three months, unless complicated with severe pleurisy or lung fever.

THE SYMPTOMS OF CONSUMPTION.

Of course, it is of the utmost importance to recognize the presence of this insidious disease as quickly as possible. Much attention has of late been directed in the profession to the attempt to define and lay down rules for the recognition of the precursory or preliminary stage—the dawn, as it were, of the disease. In some cases this stage is readily to be detected, in others it is too brief or too indistinctly marked to be observed with any certainty. The symptoms which

characterize this *preliminary stage* are, commonly, slow wasting of the bodily vigor, good spirits, pallid or sallow complexion, animated yet careworn expression of the features, hurried and anxious movements, uncertain appetite, imperfect digestive power, and diarrhœa. The sleep is restless, and there is occasional perspiration at night. Invariably there is loss of weight.

Consumption ordinarily sets in with a short, dry, hacking cough, most frequently induced on going to bed at night and on rising in the morning. This cough may continue for some time without getting much worse or without the appearance of any other noticeable symptom. It seems at first intended merely to clear the throat where the tickling irritation is felt. As the cough increases, at first a scanty and then often a copious frothy expectoration occurs, which is frequently streaked or stained with blood. In about one-half of the cases there is spitting of blood, either pure or mixed with the phlegm, and this often gives the patient the first unmistakable indication of the nature of his trouble.

Dyspepsia, biliousness, loss of appetite, and headache are present to a greater or less degree in most cases. Among other symptoms, the patient complains of languor; he is easily fatigued, and feels unequal to his usual work. He has burning of the soles of the feet during the night, and some perspiration. He rises in the morning unrefreshed, after having passed a restless night. The muscles become flabby, and the

face pale. The pulse is quickened, and beats from 90 to 140 times in the minute.

In some cases the nails become curved, prominent in the centre, depressed at the sides, crooked and bluish, and the ends of the fingers have a peculiar round or clubbed appearance. A nail similar to this, however, is seen in long-standing heart disease. It is not, therefore, necessarily indicative of consumption.

A red line around the border of the gums is often present. In some patients it is a mere streak, in others a twelfth of an inch in breadth. It is not, however, a sure sign of the presence of consumption, for it is sometimes noticed in persons, particularly those with bad teeth, who are unaffected with this disease.

The white of the eye usually becomes of a pearly hue, and the pupil is dilated.

As the disease gradually progresses, the cough becomes more frequent and troublesome; the expectoration increases; the patient is very "short-winded," the least extra-exertion in walking exhausts him and compels him to stop to recover his breath; hectic fever at length appears; the debility increases; chilliness is complained of in the evening; the patient wakes at night or in the morning bathed in a profuse perspiration; diarrhœa sets in and increases the general feebleness; the lower extremities become painful and dropsical; and death closes the scene, the mental faculties being usually retained clear and unimpaired until nearly the last hour.

In the language of Dr. Da Costa: "The harassing

cough by day and by night; the impaired appetite and disturbed digestion; the loss of blood from the lungs; the steadily augmenting debility; the short breathing; the exhausting night-sweats; the hectic fever; the deceptive blush which this imparts to the cheek; the increased lustre of the eye; the singular hopefulness; the temporary improvements; the relapses; and the greater vividness of the imagination, so strongly contrasting with the waning frame—are phenomena with which sad experience has made not only every physician but many a fireside familiar."

THE PREVENTION OF CONSUMPTION.

We have, at some length, in the first part of this work, entered into a description of the precautions to be observed in order to avoid consumption, by physical and mental education, occupation, marriage, and certain special courses of action. We need therefore, in this connection, only request our reader to refer back to page 202.

THE CURABILITY OF CONSUMPTION.

Before entering into the details of treatment, we have some encouraging words for consumptive patients. The general impression is that consumption is incurable, that all those affected with it must die. This is not correct. It is true that consumption is not commonly cured, that most cases terminate fatally; but it does not, therefore, follow that the

disease is incurable. On the contrary, the curability of the disease is becoming every day more widely recognized in the profession. It will doubtless always be found one of the most fatal of the maladies which afflict our race, mainly, however, because the conditions of cure are often those with which the patients are unable to comply. Dr. Wood, in his work on the Practice of Medicine, says on this subject: "I am not one of those who believe that consumption is in all cases necessarily fatal. On the contrary, I believe that, in one stage or another, it is occasionally cured, or at least ends in perfect recovery. It is no very unfrequent event to see threatening symptoms of consumption give way under suitable treatment. It cannot be proved, with absolute certainty, that those symptoms were tuberculous; because the evidence of dissection is wanting, and the physical signs are not sufficiently positive, in mild cases of early consumption, to authorize a certain conclusion. But they are undistinguishable from symptoms which, in other cases, are the forerunners of confirmed consumption; and we have abundant evidence from dissection that tubercles are capable of undergoing favorable modifications. The probability is that the tuberculous matter is absorbed, and sometimes, as shown by dissection, replaced by calcareous matter; and, if the constitutional tendency be so far subdued as to prevent the deposition of other tubercles, before these have completely run their course, the disease may be said to be cured. The circumstance that such remains of tubercles are not unfrequently found in the

lungs of old persons, who have died of other diseases, would seem to show that these cures are sometimes permanent.

"But this is not all. It occasionally happens that consumptive symptoms disappear entirely even in the second stage of the disease, after the formation of a cavity in the lungs. This event, it is true, is comparatively rare; but some cases have probably fallen within the notice of almost every practitioner of extensive practice. Even should the disease ultimately return, still the case may be said to have been cured; as the occurrence of a second attack of inflammation of the lungs is certainly no proof that the first was not cured. But there have been cases in which no return of the symptoms has taken place during the residue of life, even though considerably protracted. Two instances of this kind have occurred in medical men of the city of Philadelphia. One of the patients was affected, when a young man, with all the symptoms of consumption, including frequent attacks of spitting of blood, severe cough, hectic fever, etc., from which he completely recovered, and continued exempt up to the time of his death, which occurred many years afterwards of typhoid fever. The other was my preceptor and friend, the late Dr. Joseph Parrish, who in early life labored for a time under the symptoms of consumption, and after his death, at an advanced age, was found to have several cicatrices of the upper part of one lung, which were obviously the remains of tuberculous cavities. We may, therefore, always entertain some hope if applied to in the early stage, in

cases of no great severity, of seeing a cure effected; and even in the second stage, when the constitutional taint is not very strong, or the local disease extensive, there is no reason for absolute despair. Even in cases which appear to offer no chance of ultimate recovery, we may hope to be able very much to prolong the duration of the complaint, and sometimes even to add years to a valuable life. There is an individual now pursuing an active business in Philadelphia, though with a cavity in his lung, who eight years since was under my care with severe cough, copious purulent expectoration, night-sweats, hectic attacks, and great emaciation and debility."

We could readily adduce additional medical testimony, were it necessary, as to the curability of consumption. In our own private and clinical practice we have met with a number of cases in which recovery from the disease has undoubtedly taken place, and others in which, although the patient cannot be said to be cured, yet in which life is prolonged and the patient able to continue for many years his ordinary avocation. One business man, at the head of an active firm, said to us some time since that he gave up his business long ago on account of the condition of his lungs, and went home to die; but getting tired of waiting, he resumed his active occupation, and now conducts successfully a large trade. The trouble in cases of consumption lies not so much in the difficulty of cure as in the difficulty of finding a patient both *able and willing* to institute the proper treatment *early* in the affection.

THE TREATMENT

Of consumption consists principally in measures to improve the general health by attention to the quantity and quality of the food, by exercise in the open air, by the avoidance of ill-ventilated and close rooms, by care of the skin, by warm clothing, by change of climate if possible, and by the administration of tonic and restorative medicines.

THE DIET IN CONSUMPTION.

Consumptive patients require the most nutritious food. An animal diet should be taken so long as the stomach can digest it. Milk and cream and raw eggs are all very nutritious (see receipts on pages 491, 499, 500, 501, 502, 504). The strong animal broths are of great service; among our "Receipts for the Sick Table" (p. 490) will be found many useful preparations of meats and broths suitable for the consumptive patient.

Dr. Edward Smith, an English physician of great experience in the treatment of consumption, gives in his work on this disease a bill of fare for the consumptive. This we append, not that it may be scrupulously followed, but in order that the suggestions may be heeded.

SCHEME OF DAILY DIET.

Inasmuch as the strength and vital powers are greatly reduced during the night in consumption, it is

of prime importance to supply food to the patient in the night as well as in the day.

1. Immediately on awaking in the early morning, half a pint of milk (hot, if possible) alone, or with chocolate added, with bread and butter.

2. For breakfast: three-quarters of a pint of milk, with coffee, chocolate, or oatmeal, and eggs or bacon, in addition.

3. At 11 A.M., half a pint of milk, or of good beef-tea made from ox heads or shins, with bread and butter.

4. An early dinner, with plenty of meat, and milk and egg pudding.

5. An early tea, consisting of milk, with coffee or chocolate, and bread and butter.

6. An early supper of three-quarters of a pint of milk, with oatmeal and chocolate, and bread and butter; or two eggs with bread and butter, and milk to drink.

7. During the night, a cup of milk and a little bread and butter to be placed by the bedside, and to be eaten if the patient should awake.

By this mode a much larger quantity of food may be taken than would be possible if the food were given only at the usual meal hour, and as it will be taken in small quantities, the system will not be oppressed by it, and the vital actions will not be allowed to subside. It is a dietary which allows a considerable quantity of nutritious material to be stored up in the system, since it is rich in nutriment.

SPECIAL ARTICLES OF FOOD.

Dr. Smith, the author of the scheme of daily diet just given, thinks, with all other physicians who have given attention to the subject, that it is of great importance that there should be a considerable amount of fat taken, whatever may be the quantity of vegetables supplied, since it is manifest from common experience that the vegetables and greens cannot alone meet the requirements of the system. The dietary above given supplies, in the milk ordered, nearly three ounces of butter daily, and this added to the butter eaten with the bread, would amount to five ounces daily. The meat, when well-fed, offers upon the whole beast from one-fourth to one-half of weight of fat, so that with six ounces of meat we supply about two ounces of fat, giving a total daily supply of fat of seven ounces.

The essential consideration in the diet of patients, in the early stages of consumption, is an abundance of animal and fatty foods, with such an addition of bread, vegetables, and the various preparations of grain as may be necessary for admixture with the fat. It is of prime importance that nutritious food of this character shall be supplied early and freely to every patient.

Dr. Edward Smith has, it will be noticed, omitted tea as a dietetic article for consumptives, while he has recommended the use of coffee and chocolate. This he has done because tea possesses the power of increasing the action of the skin, and whilst there may

be some cases in which this action would not be injurious, in many instances it would be hurtful. Coffee and chocolate, on the contrary, lessen rather than increase the action of the skin.

Cream and sugar should enter as largely as possible, without exciting disgust or disordering the stomach, into the diet of consumptives. Every variety of wholesome food pleasant to the patient is to be permitted, and the appetite and powers of digestion are to be encouraged in every way.

When the appetite fails, or the digestion weakens, so that nutritious articles of food cannot be taken, a serious obstacle to treatment is presented. The patient should know, above all things, the importance of taking in small quantities at short intervals the largest amount of nutriment in the smallest bulk; for, upon the nourishment he can take, depends his main hope of recovery. He should, therefore, co-operate to the best of his ability with nurse and physician in their efforts to support him.

When the powers of digestion of the consumptive begin to fail, and when there is soreness of the stomach, the use of *pepsine* with the two principal daily meals is to be strongly recommended.

Pepsine is a powder prepared from rennet bags, the fourth stomach of ruminating animals, by washing them, and scraping off the lining membrane and properly treating it. Fifteen grains of the powder should be given at the commencement of a meal, either between two pieces of bread or in a tablespoonful of lukewarm soup. Or, the *wine of pepsine* may be used, of which the dose is a teaspoonful.

The addition of a teaspoonful of lime-water to a tumblerful of milk will often facilitate its digestion, when it would otherwise disagree.

EXERCISE IN THE OPEN AIR,

Or out-door life, is of the utmost value in the treatment of consumption. Prof. Flint considers it of all measures the most important. He has published a carefully recorded history of sixty-two cases of consumption in which an arrest of the disease took place. In twenty of these, it is stated that the arrest took place under hygienic measures without medicinal treatment, of which the most important related to change of habits in regard to exercise and out-door life. In those cases, also, which were treated medicinally, the improvement corresponded with a greater or less change in the habits of life—in relinquishing sedentary callings for other more active and open-air pursuits. Prof. Flint says: "I would rank exercise and out-door life far above any known remedies for the cure of the disease. There are grounds for believing that the advantage of a change of climate mainly consists in its being subsidiary to a change of habits as regards exercise and out-door life. So deeply impressed am I with the correctness of this view of the regimenal management of the disease, that I cannot express myself too emphatically in trying to enforce its practical importance. Exercise in the open air should be accompanied by either mental recreations or occupations which interest the mind. It should, as

far as possible, be incidental to pursuits which engage the attention. Adopted simply as a hygienic measure, it will rarely be persisted in. It is often essential, therefore, for patients to make a radical change in business; or, if they are able to devote their time to the restoration of health, hunting, sporting, travelling, etc., are to be resorted to as a means of securing the union of out-door life with an agreeable exercise of the mental faculties."

It is, indeed, difficult to overrate the benefit to be derived from properly regulated recreation and exercise in the open air. Here again, however, we are reminded of the remark which we made at the outset, that the difficulty in treating consumption is not in the want of efficient remedies, so much as in the fact that these remedies are out of the reach of most patients. Any one when sick can procure and take a medicine (from a free dispensary or hospital if necessary), almost every one can procure a proper diet, but how few have the time and money to spare for months of health-seeking by means of out-door pleasures. No dispensary or hospital has yet been organized which can afford help here. Imperative necessity, the calls of business, and the needs of dependents, stand like barrier-walls between disease and cure, and hem the patient in to his own destruction.

CARE OF THE SKIN.

The skin must be kept in a good condition. Too much attention cannot be paid to this point. Not

only should it be kept clean, but *groomed.* By proper bathing and hand-rubbing, or friction with the Turkish towel, the blood should be kept to the surface. The cold sponge-bath may often be daily taken with advantage. It is perfectly safe if it be followed by an agreeable glow of the surface. Some patients bear well and are much benefited by a cold shower-bath daily, followed by brisk friction of the skin with a coarse towel.

WARM CLOTHING.

The warmth of the body and a healthy state of the skin are to be maintained by proper clothing, which should not, however, be of such a character as to heat the patient uncomfortably or produce perspiration. Either woollen or silk vests and drawers are to be worn by both sexes; their weight and thickness being changed with the season of the year. In cold, inclement climates, a waistcoat of chamois or buckskin may be worn, by both sexes, over a light undershirt of wool or silk. The underclothing worn during the day must be removed at night. The bedcovering is to be of moderate thickness, and, if possible, increased in the early morning. It must not be so abundant as to oppress the patient by its weight, or exhaust him by the perspiration it occasions. Blankets are much to be preferred to heavy counterpanes. The bed should not be surrounded by curtains, nor should the patient sleep with his head under the covers.

The feet must at all times be protected against wet and cold. For this purpose, boots or shoes with thick

leather or cork soles are much better than rubber overshoes.

CHANGE OF CLIMATE.

In no disease, probably, is change of climate more urgently called for than in consumption. In whatever climate the disease breaks out, it proceeds with the most rapidity if the patient remains in that country. As a rule, consumption is most frequent in low, moist situations. The only exception to this is in those districts where the temperature is very equable, as on the shores of the Mediterranean, and in some parts of Florida. The disease is far less prevalent in the mountainous parts of all countries than in the lower districts.

Treatment by proper change of climate, when resorted to sufficiently early in the disease (it is cruel to send away a patient in the last stages, to die away from home), produces the happiest results. Something more is necessary, however, than a mere removal to a healthful place. There are many precautions which are to be taken in regard to the care of the health, in order to secure the best effects from climatic treatment. Information in regard to the kind of climate to be chosen, and general directions to be followed by the invalid in changing climate, will be found on page 654 and the ensuing pages.

THE MEDICINAL TREATMENT OF CONSUMPTION.

This, as we have before stated, is less satisfactory than the hygienic treatment. There is no specific for this disease. Certain medicines, however, judiciously administered, can do much for the patient by acting as tonics, and thus building up the system, or by relieving troublesome symptoms.

The use of *cod-liver oil* in this disease is so well known that we need not dwell upon it further than to say that its reputation is a deserved one. The *brown oil* is very disagreeable to every one excepting an Esquimaux. There is no necessity for using it. Very clear, sweet, and scentless forms of the oil may be now obtained from good druggists. The dose at first should not be more than a teaspoonful, to be gradually increased to a tablespoonful twice or three times a day. In giving the treatment of scrofula, we mentioned in detail the proper means of administering this oil and of disguising its taste. The directions there given apply here; the reader will find them on page 794.

The use of *iodine* has also been dwelt upon in discussing scrofula (see p. 795). This remedy is of as great value in consumption, scrofula of the lungs, as it is in general scrofula.

Arsenic is a remedy which may frequently be employed with great advantage in cases of slow consumption. It may be administered in various ways. The following is an excellent combination of it with iron, recommended by Dr. Da Costa, of Philadelphia:—

Take of—
Arsenic, one grain.
Lactate of iron, thirty grains.
Syrup, sufficient to make a mass. Mix.
Divide into thirty pills. Take one three times a day.

Or, the arsenic may be given in the form of *granules* (minute pills). One of these, containing $\frac{1}{60}$ of a grain, may be taken just before each meal. Or, Fowler's solution of arsenic may be employed, one or two drops being taken in water during each meal.

Extensive professional experience has shown the entire harmlessness of arsenic when properly administered (in the doses and manner mentioned). It is unquestionably a very effective remedy in certain forms of consumption. Nearly every patient who is put upon its use shows, within a few days, a marked improvement in his general condition; the appetite increases, the strength returns, the skin becomes clearer and the eye brighter. In about a month, when the remedy acts favorably, flesh begins to be gained. The best cases for the administration of arsenic are those in which there is little fever and no severe dyspeptic symptoms. After this medicine is used, in the small doses given above, regularly for a month or six weeks, it should be stopped for ten days or two weeks, and then again resumed; and the treatment, with occasional intermissions, thus continued, if it prove beneficial, for months.

The use of natural iron-waters is beneficial in most cases of consumption, by the tonic effect produced (see p. 645). The waters of the Red Sulphur Spring

of Virginia are of service in combating the early symptoms of the disease (p. 648).

Among the Standard Domestic Remedies we have recommended, *the tonic* will be found very valuable throughout the whole course of the disease, and *the expectorant* when, from a cold, the cough is more troublesome than usual.

Counter-irritation to the chest is a valuable procedure in the early stages of the disease. It is best effected by means of *croton oil.* A mixture of equal parts of croton oil and sweet oil may be rubbed on the chest, under the collar-bones, every evening until the skin is made sore; and again renewed as soon as the eruption and soreness pass away. It is useless to institute or persevere in this counter-irritation late in the disease, when the patient's strength is exhausted, for it is then weakening and annoying, and without benefit.

In the St. George's Hospital, London, the following ointment is much employed instead of croton oil:—

Take of—
Calomel, eight grains.
Iodine, thirty grains.
Alcohol, one and one-half fluidrachm.
Fresh lard, one ounce. Mix.

Of this a portion is to be rubbed in over the affected lung morning and evening until an eruption comes out upon the skin.

Some physicians employ as a counter-irritant, instead of either of the above applications, a solution of lunar caustic (nitrate of silver) of the strength of thirty

grains to the ounce of distilled or rain water. The skin of the chest under the collar-bone is to be well painted with this every evening until it becomes of a dark-brown or black color. This application is to be made evening after evening until the scarfskin peels off.

THE RELIEF OF THE COUGH.

Cough mixtures, as a rule, should be taken sparingly. It is a great mistake to constantly dose a consumptive patient with some pulmonary syrup or expectorant remedy. Besides doing little or no good, these mixtures disorder the stomach, and thus prevent the patient from taking food, upon which all his hopes of recovery depend. Nevertheless, occasionally the cough is so irritating and constant that it demands attention, for the frequently recurring attacks of coughing themselves destroy the digestive powers and induce nausea. Every patient should remember, however, that much of this superfluous coughing can be checked by his own efforts, that the habit of unnecessary attempts at expectoration is, to a considerable extent, under voluntary control. The patient should resist the inclination to cough whenever it is not required to get rid of phlegm actually present. An excellent soothing mixture when the cough is troublesome is the following, which any druggist can put up:—

Take of—
Laudanum, half a fluidrachm.
Fluid extract of wild cherry,
Syrup of gum arabic, of each, two fluidounces.

Of this a teaspoonful should be taken several times in the day when the cough is most troublesome. The laudanum may be omitted from the recipe if desired; it is in such a small dose that there is little danger of its affecting at all the appetite.

TO CHECK THE NIGHT-SWEATS.

These are often annoying and exhausting. Often the following mixture will be found very efficacious for their relief, as well as for the soothing of the cough:—

Take of—
Dilute sulphuric acid, two fluidrachms.
Fluid extract of wild cherry, two fluidounces. Mix.
Dose a teaspoonful three or four times a day.

Bathing the skin in the evening with a mixture of equal parts of good cider-vinegar and water, or with bay-rum and water, or a solution of alum and water of the strength of a teaspoonful to the pint, are all useful remedies. Sage-tea (made of the strength of half an ounce of dried leaves of sage to a quart of boiling water, with lemon and sugar added) taken at bedtime, is also a useful preventive.

TO STOP BLEEDING FROM THE LUNGS.

Most consumptive patients have sooner or later an attack of hemorrhage from the lungs of greater or less severity, which alarms themselves and their friends. There is really, however, comparatively little danger of the patient bleeding to death from this cause. It is very rare for the hemorrhage to be so excessive as to cause death. The patient may, and often does, become so exhausted by the loss of blood that his death is hastened by it. Hence the importance of checking as soon as possible hemorrhage from the lungs.

There is one remedy which is perfectly safe, and very nigh infallible in these cases. No patient, liable to such attacks, should be without it in his pockets; no family, of which a member is ill of this disease, should neglect to have the remedy at hand. This remedy is *gallic acid.* It should be obtained from the druggist, put up in powders of twenty grains each, and at least ten of these powders should always be kept ready for immediate use in an emergency. One should be given every five or ten minutes until the bleeding ceases. We repeat, there is no danger of any sort in the free administration of this preparation, and that it is the most effective as well as the safest remedy known.

Common salt is often employed in domestic practice for checking hemorrhage from the lungs. It should be given dry, in the dose of a teaspoonful. Turpen-

tine is also of service in ten-drop doses every ten minutes.

When there is no actual hemorrhage, but frequently repeated spitting of blood, or staining of the expectoration with it, the following pills will be found useful to control the circulation within the lungs, and check the tendency to bleeding:—

Take of—
Sulphate of copper, seven grains.
Sulphate of iron, two scruples.
Extract of henbane, one scruple. Mix.
Divide into twenty pills, and take one three times a day.

When there is a tendency to repeated attacks of hemorrhage or spitting of blood, cod-liver oil, if it is being administered, should be suspended for a while until this tendency, by the use of the above pills for about ten days, is gotten rid of.

TO CHECK THE DIARRHŒA.

When the consumptive patient is troubled by a looseness of the bowels, a flannel bandage should be worn around the abdomen, and powders of the *subnitrate of bismuth* given, fifteen grains three times a day. The diarrhœa which comes on in the latter stages of the disease it is difficult, and often impossible, to check or relieve.

We have now gone over, with some minuteness and care, the treatment of consumption. We have endeavored to call the attention of the reader to the impor-

tance of *early* measures for its relief, and to impress upon him that such measures, judiciously chosen and faithfully followed out, offer a fair prospect of cure. We have also endeavored to induce him to place more reliance upon hygienic remedies, change of climate, exercise in the open air, a generous diet, and a careful supervision of the condition of the skin, than upon drugs, while we have not failed to point out the value of many of the latter for the relief of troublesome symptoms and the restoration of enfeebled powers. Above all, it has been our aim to bring into prominence *prevention* rather than cure.

CHAPTER VIII.

DISEASES OF THE HEART.

CONTENTS.

ENLARGEMENT OF THE HEART. Causes of enlarged heart—The symptoms—The treatment by diet, by rest, by medicines.

THE BLUE DISEASE. Its nature—The symptoms—The mortality of the disease—The treatment.

ENLARGEMENT OF THE HEART.

THE proper size of the heart may be roughly stated at about that of the closed fist. In the adult male, the average weight is about nine and a half ounces; in the adult female, about eight and a half ounces. The heart naturally increases in weight somewhat after the age of sixty.

When the heart, from any cause, becomes much larger than the above-mentioned size, the patient has *enlargement of the heart*, or, in medical language, *hypertrophy of the heart.*

CAUSES OF ENLARGED HEART.

The heart is a muscle, a hollow muscle. Like all other muscles of the body, it increases in size if its

exercise be increased. We have all seen in the arm of the blacksmith the effect of exercise upon the muscles. Every gymnast knows that if he regularly calls into play for a while any series of muscles, that, even in a few weeks, they will augment in volume as well as power. This is also true of the heart. Whatever, therefore, leads to increased action of the heart, tends to enlarge it. Hence excessive and prolonged physical exertion, like that of the professional rower and prize-fighter, is one of the causes of this disease. But it is most commonly met with, probably, after attacks of rheumatism. We have pointed out, in treating of that disease, the importance of so treating it as to avoid any heart affection. It is more common among males than females. Soldiers during our late war were very frequently affected with it in consequence of the strain of long and forced marches.

THE SYMPTOMS OF ENLARGED HEART.

The eyes are bright, and often prominent; the lips and eyelids are apt to be unduly red. The pulse is full and strong. The large vessels at the sides of the neck beat forcibly under the influence of the least unwonted excitement or exertion. Often there are headache and giddiness, ringing in the ears, rush of blood to the head, and shortness of breath. The action of the heart is sometimes so forcible as to attract the patient's attention, and alarm him while lying in bed. In a few instances there is a dry cough, which may

lead to the belief that there is threatened consumption.

THE TREATMENT.

The cause of the disease should be detected, and, if possible, avoided. The gymnast should cease his forced feats of strength, which are the cause of the mischief; the rower should abandon his boat exercise. In some cases the use of coffee deranges the action of the heart. This, however, is rare. Cases are met with in which, from a peculiarity of constitution or from excessive use of this ordinarily harmless and restorative drink, palpitation and enlargement of the central organ of circulation ensue. In a case recently under our professional charge, a young lady had produced palpitation of the heart, which would doubtless have shortly led to enlargement, by her habit of drinking at each meal several large cups of very strong coffee. When the coffee was prohibited, the trouble passed away. Tobacco, in some few individuals, also disorders the heart's actions. Such persons should, of course, give up the use of the weed altogether and in every form.

As a medicine, there is nothing of greater value in subduing the violent throbbing of the heart than *aconite*. It must, however, be given in small doses, and its administration kept up persistently for many months. One drop of the tincture of aconite should be given twice a day until the action of the heart becomes softer and less forcible. The dose may then be reduced to a drop once a day, and continued for a year

if necessary. In these doses there is no danger from the use of this remedy, and its beneficial effects are very marked.

The diet must be unstimulating. Animal food is to be permitted, especially if the patient is pale and feeble. But no alcoholic liquors are to be allowed, and the patient should limit, as much as possible, the quantity of fluids which he drinks.

The wearing of a *belladonna plaster* over the heart will be found useful.

No immediate effects are to be hoped for from the above treatment, nor are they to be sought for. Any attempts to suddenly lessen the heart's action are dangerous. But a patient perseverance in the above line of treatment for months or years will prevent any further increase of the disease, and gradually tone down the force and reduce the size of the affected organ.

The patient is, of course, to guard himself as much as he can against any exciting emotions, and to avoid all violent muscular exertions—whatever, in fact, disturbs the heart and produces an attack of palpitation.

A *milk diet*, if strictly adhered to, will in many cases afford much relief to persons affected with heart disease. Under the influence of this diet the impulse of the heart diminishes, together with the palpitation and the congested condition of the lips and eyelids; the dizziness and ringing in the ears also gradually disappear. The patient experiences unexpected improvement even in very severe cases, and by the

adoption of this plan life may be prolonged in those instances where a permanent cure cannot be hoped for.

When dropsy appears in consequence of disease of the heart, diuretics are to be resorted to. For this purpose a powder consisting of ten gains of nitre and half a grain of squills may be given three times a day. Or, instead of squills, a teaspoonful of cream of tartar may be mixed with the ten-grain powder of nitre, and taken two or three times a day.

The Blue Disease.

Occasionally a child is born the whole surface of whose body is of a deep blue or purple color. It is then said to have "the blue disease." Ordinarily this condition appears at birth or is first noticed a very short time after. It sometimes comes on later in life. It has been noticed after an attack of cholera, after great physical exertion, particularly in a young person, and after an attack of rheumatic fever.

This disease is due to a malformation of the valves of the heart, which permits of a mixture of the blue venous blood with the red arterial blood. This malformation usually exists at birth, though it may in rare instances be induced by the causes just mentioned.

The discoloration of the skin differs greatly in different cases. Sometimes the color is very slight, in others it is so dark as to approach blackness. Every part of the body is affected. But certain portions, for instance, around the eyes, the ears, the cheeks, the lips, the end of the nose, and the roots of the fingernails, present a discoloration deeper than elsewhere. The degree of the blueness varies in the same case at different times. Thus, fits of coughing, excessive exercise, mental emotion, and whatever excites the action of the heart, increase its intensity. Indeed, in mild cases, the blueness may not be noticed excepting when the system is under the influence of one of these circumstances; when the heart is perfectly tranquil, it may be entirely absent.

THE MORTALITY OF THE DISEASE.

This affection is a very fatal one. If the case be at all severe, life is rarely prolonged more than a few years; when the disease is less marked, the patient may live to middle life. One hundred and eighty-six cases of blue disease have lately been collected and their histories recorded. Of these, 67, or more than one-third, died in the first year of life, nearly a half of them in the first week; 121, or more than three-fifths, failed to reach the tenth year of age; only 24 survived twenty years of age, and but four of them reached the fortieth year. In one case on record, life was prolonged for fifty-seven years.

Many of the children affected with blue disease die in early infancy from hooping-cough or some other disease of childhood, for they resist badly an attack of any prevailing malady. Many die of convulsions and from suffocation.

Patients who long survive their birth suffer greatly from coldness of the body, palpitation of the heart, attacks of difficulty of breathing, and often faint on the least excitement. The ends of the fingers and toes become enlarged, bulbous-like, and the nails are curved.

Throughout life, the muscular and the mental powers are both deficient, and the unhappy patient is shut out to a great extent from the world of pleasure and usefulness.

Males are more liable to blue disease than females.

The reason of this difference between the sexes is not known.

THE TREATMENT

Of blue disease is necessarily palliative rather than curative. It has for its object to relieve the most troublesome symptoms, to give to the patient the greatest amount of comfort possible for him, and to avert threatened death; it cannot hope to effect a radical cure.

The diet should be nourishing, the clothing warm, the climate mild, the mind tranquil, and the physical powers untasked. The patient must avoid all exposures to severe cold, and support his strength when required by tonics.

When an attack of difficulty of breathing and threatened suffocation comes on, the proper treatment is the internal administration of Hoffmann's anodyne or some other stimulant, the application of mustard plasters to the chest, and the immersion of the feet in a mustard bath.

It has been recommended that young children afflicted with this disease should be placed on the right side upon a pillow raised to an angle of about forty-five degrees. This position seems to relieve the blueness of the surface, and to add to the ease and comfort of the child. Its beneficial effects are due to the fact that in this posture the heart's action is freer and more unincumbered.

When the veins of the legs are enlarged and torturous, laced stockings should be worn.

Attention to the above details will give the sufferers from blue disease the best chances for life and happiness that medical science can afford them.

CHAPTER IX.

DISEASES OF THE ORGANS OF DIGESTION.

CONTENTS.

CHOLERA. Its fatal character—Definition of the disease—Where and how it originates—The manner in which it travels from country to country—Circumstances which predispose an individual to an attack—Is it contagious?—How to prevent it—The symptoms of cholera—The treatment.

DYSPEPSIA. The causes—Avoidable causes: eating too much; eating too little; sedentary habits; solitude; improper use of purgative drugs; tight-lacing; the abuses of alcohol, tea, tobacco, and opium—Unavoidable causes—The symptoms of dyspepsia—The treatment: by diet; by medicine, home remedies, and drugs—Heartburn, its causes and treatment—Sour stomach, causes and treatment—Flatulency, causes and treatment—Pains in the stomach—Value of mineral springs for dyspeptics.

CONSTIPATION OF THE BOWELS. The causes of constipated bowels: the abuse of purgative medicines; indolent habits; neglect of nature's calls; errors in diet; old age—The treatment: by hygienic means, movements, diet, use of water, exercise, mineral springs, and home remedies.

DIARRHŒA OR LOOSENESS. Definition—The cause of diarrhœa—Its mortality—How to treat it—Chronic diarrhœa and its treatment.

DYSENTERY OR BLOODY FLUX. Difference between diarrhœa and dysentery—The fatal character of dysentery when epidemic—The causes—The symptoms—The treatment.

LIVER COMPLAINTS. The obscure and difficult character of diseases of the liver—Jaundice—The meaning of the name—The symptoms of jaundice—The causes—The treatment.

CHOLERA.

THIS disease has been justly described as the most fatal known in the annals of medicine. The cholera poison is one

> "Whose effect
> Holds such an enmity with blood of man,
> That, swift as quicksilver, it courses through
> The natural gates and alleys of the body·
> And, with a sudden vigor it doth posset
> And curd, like eager droppings into milk,
> The thin and wholesome blood."

Such is its overwhelming effect upon the patient, that it is known at Bagdad under the name of *Haouwa*, which means tornado. It is also called malignant cholera, epidemic cholera, and Asiatic cholera, terms which denote its severity and origin.

DEFINITION.

Cholera is a disease developed under certain conditions of the air and soil, and capable of being spread abroad, from country to country, by means of the atmosphere and of human intercourse between the healthy and sick. The symptoms are, in most instances, a forerunning diarrhœa, painless and watery in character; sudden loss of strength; tremblings of the body and limbs; swimming in the head; nausea and vomiting; pain in the bowels; difficulty of breathing, and a feeling of faintness; loss of voice; coldness and dampness of the whole surface of the body, and cold

breath; cramps and restlessness; intense thirst; blueness of the skin, and a sunken and appalling countenance; and a peculiar odor from the body. These symptoms terminate in death in from fifteen minutes to a few days; in recovery, in from twelve hours to a week or two.

ORIGIN OF THE DISEASE.

Cholera is of eastern origin. It probably existed in India for a long time, but the first migratory epidemic appeared at Jessore in 1817; it devastated Calcutta, and decimated the grand army of the Marquis of Hastings. In 1831 it was imported into the north of Europe, into England, and on the 8th of June into our own country. It visited us by way of Quebec. On the week after its arrival it appeared at Montreal, and within the month at New York and Albany. The first cases appeared in Philadelphia in July, and in Boston and Baltimore in August. Before September, 1832, it had entered twelve different States of the Union. Charleston, South Carolina, did not suffer from it until 1836. It appeared to die out in the United States in 1837, and remained absent for about twelve years. The second visit to this country by the disease was paid in the year 1849, having come from Europe, where it prevailed during 1848–49. It lingered in many places in Europe and the United States from 1850 to 1854. The Western States suffered the most; it seemed specially to cling about military stations and emigrants' camps. During this period, the

disease did not prevail with any violence until 1853. The years 1853 and 1854 were cholera years in both continents. In the spring of 1866 it appeared in New York and spread over the country.

In these epidemics, the disease attacked the poor in a larger proportion than the rich, showing that destitution, filth, and foul air have much to do with its appearance and stay.

CIRCUMSTANCES WHICH PREDISPOSE TO THE DISEASE.

All ages, even the new-born, are liable to the affection. The mortality is least from six years to twenty, and greatest in old age. The Registrar-General of England shows, in regard to the influence of *sex*, that more males suffer from the disease than females under the age of twenty-five; but between twenty-five and forty-five the females suffered more than the males. In Canada, the soldiers' wives were observed to suffer nearly in an equal proportion with their husbands. In all countries and in every city it has been observed that the lower and poverty-stricken classes (particularly those resident on the banks of rivers) are attacked very much more generally than the upper and weathier classes. A poor *diet* also predisposes to cholera. Thus it is well known in India that the European suffers less than the Mohammedan, who in turn suffers less than the worse fed and clothed Hindoo. During the rigid religious fasts of the Mohammedans they are more liable to it than at other times.

IS IT CONTAGIOUS?

The contagious character of cholera has been called in question. We think that the evidence as to its contagiousness is conclusive. It is communicated in many instances from one person to another. The characteristic rice-water discharges from the bowels of the patient are instrumental, as has been well pointed out by Dr. Budd, in transmitting the poison of the disease to other and uninfected persons in the following principal ways:—

1. By the soiled hands of attendants on the sick, a mode of communication probably very common within the limits of the family circle.

2. By means of bed and body linen, and other articles tainted with the rice-water discharges.

3. Through the medium of the soil. The discharges being liquid, the great bulk of them find their way to the ground, from which the poison may be propagated in these ways: (*a*) By rising into the air as a product of evaporation; (*b*) By percolating into the drinking water; (*c*) By diffusion in the atmosphere in the form of impalpable dust, after it has passed into the dried state.

While we are forced to the belief in the contagiousness of cholera, we fully indorse the opinion of an eminent authority, that "if proper precautions are taken where it is present, there is scarcely any risk that the disease will spread to persons who nurse and otherwise closely attend upon the sick. But it is not the less true that all matters which the patient discharges

from the stomach and bowels are infective; that the patient's power of infecting other persons is due entirely, or almost entirely, to these discharges; that these, however, are comparatively non-infective when first discharged, but afterwards, while undergoing decomposition, acquire their maximum of infective power; that, if cast away without previous disinfection, they impart their own infective quality to other excremental matters; that if they get access, even in the smallest quantity, to wells or other sources of drinking water, they may infect very large volumes of water; but the infective influence of choleraic discharges attaches to whatever bedding, clothing, towels, and like things have been imbued with them; and that thus even a single case of cholera may exert a terrible power over large masses of population, *if local circumstances co-operate.*

The disease may be communicated by the premonitory diarrhœa.

The prevention of cholera was discussed in the first part of this book, when treating of the avoidance of special diseases (see p. 258). We there pointed out the personal precautions necessary, the preventive treatment, the specific preventives, and the general preventive measures which should be observed by every household. We need scarcely add to these directions. As, however, the disease is eminently a preventable one, and we wish to impress certain precautions upon the mind of our reader, we will here, at the risk of some repetition, give a number of rules for general conduct when the cholera is epidemic. They are based

upon the regulations adopted by a number of the sanitary committees and boards of health of the large cities in this country and in England during the prevalence of the later epidemics of the disease.

1. Observe strict cleanliness of person, clothing, and house. Be regular in all the habits of life, in morals, meals, exercise, and sleep.

2. Do not be afraid of cholera, nor make it the topic of conversation. Fear and all the depressing passions are injurious.

3. Do not take brandy; it is not a preventive, and it may do harm by disordering the action of the bowels and stomach.

4. Do not make any change in the usual diet, if it be simple and of easy digestion. Eat moderately, and at regular intervals, as long fasting is injurious. Carefully avoid excess in any intoxicating beverage.

5. Avoid excessive bodily fatigue and mental exhaustion. If overheated, beware of any sudden chill, and see that the skin is kept comfortably warm. If the disease appears in winter, much benefit may be derived from wearing a flannel belt around the body, covering the stomach and bowels.

6. Check any diarrhœa, even the slightest, which may occur, by immediate and perfect rest in bed, a careful diet, and the administration of laxatives, as advised on page 261.

7. Remain in bed two or three days after the diarrhœa is checked. The patient, no matter how well he may feel, must obey this rule. (For other directions, see pp. 258–265.)

THE SYMPTOMS OF CHOLERA.

The disease usually shows itself in three stages. The first is characterized by diarrhœa and vomiting, which may be looked upon as efforts of nature to expel the poison from the blood. The second stage is denoted by the setting in also of cramps, spasms, and coldness of the body. The third stage is one of sinking or collapse. We have given in detail the symptoms on page 945.

TREATMENT.

The early or premonitory diarrhœa should be treated by rest in bed, regulated diet, and laxatives, as just mentioned. This diarrhœa should not be neglected even for an hour.

There must be plenty of fresh air in the sick-room. No *dry* heat should be applied to the person of the patient, but clothes moistened with hot water may be applied, or warm moist blankets thrown about him. It is important to keep the surface of the body moist. Even after the temperature is restored, tepid sponging should be kept up, or the wet sheet used. The cruel practice, which formerly prevailed, of denying the patient the cold water which he so eagerly craves to quench his intense thirst, is not to be imitated. Let him drink as freely as he will of pure and cold water, even if a considerable portion be at once poured off by the bowels. The blood is in a thick, dried state, owing to the rapid escape by means of the watery discharges,

of its fluid constituents, and the desire of the patient for water is a natural and physiological one. Ice may be allowed freely, not only to dissolve in the mouth, but to swallow in small pieces.

The following drink has been recommended as one which is generally relished and retained upon the stomach:—

> Take a raw Egg, and beat it up with half a pint of Milk. Mix with about a pint and a half of water, and add as much salt as will give the whole an agreeable taste.

Milk and water, whey, or weak chicken-broth may be taken freely. *Injections* of warm milk, frequently repeated, are of much value in relieving the pains and improving the condition of the blood.

In the second stage of the disease, a powder consisting of twenty grains of common salt, thirty grains of carbonate of soda, and seven grains of chlorate of potash, given in water every half hour, will be of service, together with the application of a large mustard plaster over the stomach. Of course, the chances of success, when the disease has passed into this stage, are much less than when it is yet in the first stage.

In the third stage, that of collapse, when marked, there is little hope. Friction with warm towels, and an injection by the bowels of the above-recommended powder of salt, soda, and potash, may be employed.

When the patient begins to recover, the secretions from the kidneys must be looked after. If he do not pass water, a teaspoonful of sweet spirits of nitre with

ten grains of acetate of potash should be frequently given in a half tumbler of water, until the desired effect on the kidneys is produced.

The greatest precaution also should be taken during convalescence in regard to the diet. The too early use of animal food has caused not a few deaths of cholera patients. Broths and like fluid preparations should, as a rule, alone be allowed until the secretion from the kidneys is fully restored and all the symptoms of the disease have disappeared.

Stimulants of all kinds tend to inflate the stomach, and are of no use; other than hot coffee or peppermint tea, few or none are to be allowed.

The host of remedial agents of a most opposite, useless, and often positively injurious kind, recommended in the daily papers during cholera times, are to be disregarded. These communications ordinarily show merely the weakness, ignorance, and credulity of the writers.

All violent remedies are to be avoided in the treatment of this disease. Strychnia, prussic acid, large doses of calomel or lead, tobacco, electricity, bags of ice to the spine, injections of spirits, etc., are alike detrimental. Nature effects a cure by slowly re-establishing the natural constitution of the blood, which none of these remedies can at all hasten.

Dyspepsia.

Dyspepsia, or difficulty of digestion, is, in American life, a very common disease. It consists in a disturbance of the stomach and digestive powers, without any other affection; or, if other diseases exist, they are of minor importance.

THE CAUSES

Of dyspepsia are numerous. Anything which interferes with the action of the stomach or intestines tends to produce it.

AVOIDABLE CAUSES.

Prominent among the causes of dyspepsia are certain *social habits*, which we shall pass in review. It is the more important to consider them, as they are influences which it is in the power of the individual to avoid or modify. They are usually persisted in through ignorance, hence we hope that some information on the subject may lead to a reform, which is the first step towards a cure of the dyspeptic disorders to which they may have given rise.

Eating too Much.—The habitual use of food in too large quantity is a cause of dyspepsia not as common with us as with Europeans. An occasional excess at the table is not productive of so much mischief—the "remorse of a guilty stomach" is usually its only punishment. But persistent gluttony, a daily over-indulgence in the pleasures of the table, brings with it

all the discomforts and pains of dyspepsia. This excess in eating is without excuse. Looking at it from the point of pleasure only, it is a mistake. The true epicure finds his greatest enjoyment in temperate indulgence; it is the quality and not the quantity of what he eats which affords gratification to his palate.

Dyspepsia does not always prevent the heavy eater from increasing in flesh. In some cases it is associated with a loss in weight, but in many others the gourmand goes on adding to his corpulence while he is suffering from the torments of painful digestion.

Headache is one of the common symptoms which accompany excess in diet. The patient also complains of a sense of fulness or repletion, want of sleep at night, feverishness in the morning, irregularity of the bowels, and depression of spirits. The remedy for this state of affairs, caused by eating too much, can be given in one word—"don't."

Eating too Little.—Those who eat too little for their stomach's welfare are not confined altogether to those unfortunates who have too little to eat. This error in diet often arises from mistaken views in regard to health. A person has pain after eating, due perhaps to improper cooking, and concludes that an abstinence from meats is the panacea. A student, or professional or business man, weakens his brain and taxes his stomach by irregular hours of eating, badly prepared food, and the refusal to give sufficient time to his meals, and then listens to the pernicious counsel of some hobbyist that his indigestion is due to too much eating. He, therefore, seeks a remedy in vegetarianism

or a restricted diet, and so undermines his general health and increases his dyspeptic troubles. Again, from false notions of religious duty, undue abstinence from food is practised, together with a self-denial of all those innocent arts of the cuisine which render food pleasant, and give thereby a fillip to digestion. In the language of Dr. Chambers, we would say: "Surely this is stoicism or Gnosticism, rather than the religion of the Bible. I am not fond of preaching, especially to clergymen, or of turning texts into traps; but people should not forget the threatening at the end of Ecclesiastes, where we are told that God will bring us to judgment, and make us account for our unused opportunities of enjoyment, for not being cheerful in our youth, and loving the beautiful; and where we are urged on these grounds to 'remove sorrow from thy heart, and put away evil from thy flesh.' Forgetfulness in youth of the Creator and His creatures, disregard of the Giver as exhibited in his gifts, and neglecting to render Him thanks by using them, always entail a punishment on either mind or body. A joyless man becomes an unhealthy man; in body, if they are bodily joys that he has foregone; in mind, if they are mental."

Among American women, in particular, the fault of eating too little is quite a common one. It should be remembered that food is the natural stimulant of the stomach, just as light is of the eye, and that if it be deprived of a proper amount of food the stomach will become weak and disordered for the same reason that

the eyes when continually exposed to complete or partial darkness become impaired and finally blind.

Sedentary habits are doubtless often blamed unjustly for that dyspepsia which is due to other causes. The English physician, from whom we have just quoted, in an excellent treatise on this subject, very judiciously says: "Among the originators of dyspepsia we commonly find included in books sedentary habits. But when I come to look over my notes, I cannot extract any cases which would exhibit this fact. I do not know by experience if a sedentary life, such as that of a clerk or book-keeper for example, would induce the defect unless it were joined to some other cause. Alone, with a properly regulated diet, it seems consistent with quite healthy digestive powers. We find it so in the bedridden under our care, whose life may be viewed as the type of a sedentary one, yet they do not suffer except from some more than ordinary folly in diet or from the misuse of some drug. When, therefore, those who come before us for indigestion attribute their state to a sedentary life, we must not stop there, but search further for other and more certain causes. For example, the editor of a weekly newspaper, aged about forty, laid on the many hours he spent in the office chair the blame of the dyspepsia which spoilt his night's rest by waking him in the early morning by flatulence. Charcoal gave him only temporary relief, but dividing his meals more (instead of a breakfast, and hearty dinner in the evening) seems to have set him up completely. Let it not be supposed that I underrate the value to health

of exercise in the open air. The fresh oxygen, the cheerful occupation, the distraction of the mind from injurious tension, must, however, be taken into account by the physiologist, and not all the benefit set down to muscular motion, which latter element is but a small part of what is usually included under the recommendation of exercise by a rational physician. I have come across more brain laborers whose digestion has been injured by injudicious excess in muscular exertion than by the reverse. Let not those whose avocations are necessarily sedentary, despair of finding by judicious experiment a mode of passing their lives in complete, though not of course blooming health. The division and arrangement of the meals according to the mode of life is a very important part of the science of digesting them."

Solitude.—Eating alone, or what is equivalent to the same thing, in the solitude of a crowded hotel table, is often productive, directly or indirectly, of disorders of the digestive apparatus. Directly, it does harm by the removal of that stimulus to digestion found in pleasant social converse, which distinguishes the eating of men from the feeding of animals. Indirectly, it does harm by leading to the habits of hurrying through a meal without proper mastication of the food. Every meal, if possible, should be taken in the company of friends and intimates, and the conversation should be cheerful. Merriment is an excellent condiment.

Improper Use of Purgative Drugs.—There are some persons in the community who are constantly dosing

themselves, and urging others to take purgative medicines. A habit is thus quickly formed, and the bowels cease to act excepting under the influence of medicine. Of course, the constant employment of cathartics soon disorders the digestion. The remedy for the dyspepsia, under these circumstances, is the *gradual* withdrawal of the customary drugs. Cold water injections are an admirable aid in the breaking up of this bad habit. As soon as the bowels begin to act spontaneously, they in turn should be gradually abandoned.

Tight-lacing.—It is said of Hiram Powers, the celebrated sculptor, that one evening in Rome, when in an assembly of beauty and fashion, his attention was called to a face of uncommon beauty. "Face," said the sculptor, after a short silence, "that is all very well, but I want to know where Lady —— puts her liver." Not only the liver, but the unresisting stomach, suffers from being dragged and pushed out of position by the pressure of the tightly-drawn stays. We can readily show the agency of tight-lacing in inducing dyspepsia in many cases, but when we come to insist upon the remedy, we have usually found in our practice that women have on this point, as has been aptly said, "a very strong won't."

The abuses of alcohol, of tea, of tobacco, and of opium are causes of dyspepsia in not a few instances. Either of these causes is usually readily detected, and its power of removal in the hands of the patient.

CAUSES OF DYSPEPSIA, TO A GREAT EXTENT, UNAVOIDABLE.

The habits of social life, which we have just enumerated, make quite an array of avoidable causes which lead to dyspeptic troubles. There are certain other influences which produce the same effect, but which are not, as a rule, under the control of the individual.

Among these we may mention mental anxiety, caused by business reverses or family misfortunes; poverty, because of the insufficient food it is alone able to furnish; excessive physical or intellectual labor, under the pressure of necessity; general debility; impurity of the blood, due to the poison of fever or cholera; and disease of the lungs, brain, or liver. Under the influence of either of these causes we may have indigestion produced. In such a case it is not so much the patient's fault as his misfortune. But when he has brought his troubles upon himself by any of the social habits we have mentioned, he is to be blamed rather than pitied.

The nervous irritability, so frequently remarked in literary and scientific men, has its origin in most instances in dyspepsia, the cause of which may frequently be traced to an avoidable habit. To all such we commend Bacon's suggestion, "that we make application of our knowledge to give ourselves repose and contentment, and not distaste or repining."

THE SYMPTOMS OF DYSPEPSIA.

One of the most uniform and prominent symptoms is loss or irregularity of the appetite. Associated with this, there is a feeling of pain or weight and fulness at the pit of the stomach after meals. Sometimes nausea and even vomiting may be present. There is usually flatulence or an excessive amount of gas in the bowels. The tongue is foul, and there is a bad taste in the mouth. The bowels are constipated at one time, and there is diarrhœa at another. The spirits are usually low, and there is marked mental and physical languor. The breath is often offensive, and the body loses flesh. In some quite exceptional cases the appetite continues good, and even becomes ravenous, while the patient becomes fatter. There are often a dull headache, and pains in the loins and limbs.

THE TREATMENT

Of dyspepsia is said to be an easy and successful one, provided the patients have the ability and willingness to follow a few simple rules. "Fling but a stone, and the giant dies." Often, however, the task of cure will be found, in practice, a difficult one.

On this subject, the professor of practice in the Jefferson Medical College says: "Unfortunately, a very large majority of our patients are incapable, however well convinced, of following our advice (as to exercise and temperance), and of the few remaining, more than a moiety would turn a deaf ear to our ex-

hortations. The student will not set a limit to the acquisition of knowledge, though made, as he is but too conscious, at the expense of his health, and ultimately of his very life. The idle sensualist cannot be spurred to exertion, but prefers the indulgence of his contemptible sluggishness. The poor artist and mechanic, though writhing under the pressure of pain and infirmity, cannot remit exertions on which depend their means of daily subsistence. Nor have we yet learned to "minister to a mind diseased," to calm the tumults of passion, to soothe into tranquillity the grief of the mourner and the anxious fears of the distressed. We must, then, be content to palliate evils which we have not the power to shun or take away; and this, in truth, constitutes the purpose of medical practice in dyspepsia. To the student we must prescribe hours of exercise; to the glutton, measured intervals and quantities of food; to the voluptuary, rules for the government of his headlong appetites; otherwise the continued application of the causes which have produced will perpetuate or renew the disease, in spite of all our remedies.

"The dyspeptic, then, should sleep on a hard, firm mattress, rather than an ordinary featherbed, should avoid late vigils, and arise moderately early. His breakfast should be a light one, and taken soon after rising, to fit him for his accustomed exercise or occupation. He should enjoy free access to the open air, and shun all close and ill-ventilated apartments. If urged by appetite or prompted by an uneasy feeling of hollowness at the stomach, or debility, he may

take a little nourishment at or about noon. His dinner should be moderate, and rather an early than a late one. If he can, he should follow the old maxim, 'After dinner rest a while;' yet, unless specially feeble, I would not encourage any indulgence in the recumbent posture or in sleep. The question as to the propriety of taking supper has been warmly discussed; but the answer seems to me an easy one. If there has been bodily labor or active exercise after dinner, a slight meal should be allowed, otherwise not.

"The term exercise comprises a variety of modes, all of which tend to the same purpose. Frictions over the whole cutaneous surface, but particularly the abdomen, do much good by exciting the vessels and disposing to perspiration. If the bowels be pressed and kneaded, it is said to arouse their peristaltic action and relieve constipation. This was Halsted's method of treating dyspeptics, at one time so famous in New York. Playing with the dumb-bells, swinging, leaping the rope, fencing, and other gymnastics, should be resorted to in bad weather. Riding in a carriage and sailing are of great service; but horseback exercise is probably most beneficial to the majority."

It was a remark of Dr. Abernethy that no person could be persuaded to pay attention to his digestive organs until death or the dread of death was staring him in the face. The regulation of the diet which alone will often effect a cure is therefore a matter difficult to enforce. Those errors of eating too much and of eating too little should be equally given up.

The abuse of tobacco, alcohol, tea, and opium must be abandoned, and the other avoidable causes of dyspepsia, which we have enumerated, avoided. The food must be masticated thoroughly, in order that it may go into the stomach in a finely divided state and well mixed with the secretions of the mouth. In regard to the character of the food, whatever is found to habitually disagree should be shunned; there must be, however, an abundant *variety* in the diet; and everything should be properly cooked. The ignorant cook, so frequently found in our American kitchens, has ruined many stomachs for her employers.

The diet should be one easy of digestion, and the powers of digestion improved by those means which strengthen the system generally. In very severe cases the stomach may be allowed complete rest and the patient nourished for twenty-four hours by means of nutritious injections (see p. 514).

THE MEDICINAL TREATMENT

Of dyspepsia consists in the administration of those remedies which are known to facilitate digestion or to relieve the pain of indigestion.

One of the best remedies, particularly when there is difficulty in digesting animal food, is *pepsine*. This is the digestive principle of the gastric juice. The symptoms which call for its administration are imperfect or slow digestion, wind in the bowels, sour belchings, nausea, low spirits, and general languor. The proper time for taking it is at the commencement of a

meal. Fifteen grains of the powder may then be given between two pieces of bread or in a little soup. The dose of the wine of pepsine is a teaspoonful.

When the stomach is not very irritable, vegetable tonics are valuable. Huxham's tincture of bark, in teaspoonful doses three times a day, will be found useful. So also will the American poplar (see p. 726). *The tonic* of the Standard Domestic Remedies is of great service in many of these cases.

Vichy and the German or Saratoga Seltzer water are beneficial in obstinate cases in which there is sourness of the stomach.

As hygienic means of cure, the movements described on page 670 are to be recommended in some cases.

White mustard seeds afford relief in some instances, particularly where there is much constipation. They are not to be broken, but a tablespoonful mingled whole with molasses and taken once a day.

A cupful of water taken as hot as it can be drunk is of considerable benefit when there is a sensation of coldness at the stomach.

An acid preparation combined with pepsine is an excellent prescription when the stomach does not secrete a proper amount of gastric juice.

> Take of—
> Nitro-muriatic acid, two fluidrachms.
> Wine of pepsine, three fluidounces. Mix.

The dose of this recipe is a teaspoonful three times a day, just before or after meals. When there is

troublesome constipation the following pills may be taken at the same time:—

Take of—
Powdered rhubarb, one scruple.
Quinine, ten grains. Mix.
Divide into ten pills.

Take one of these pills every night, and, if necessary to produce a laxative effect, one also in the morning. While following out this treatment, the diet should be nearly an exclusively meat one, all vegetable substances being partaken of sparingly.

The treatment of heartburn, water-brash, sour stomach, flatulence, and pain in the stomach, all symptoms of dyspepsia, we will mention under the head of each.

HEARTBURN.

Heartburn is a feeling of heat or cold, usually the former, experienced after food has been taken, in the upper portion and towards the left of the pit of the stomach, and running at intervals up the course of the gullet. It often resembles the sensation produced by swallowing something very hot. The time at which it appears varies. Sometimes it comes on in fifteen minutes after a meal, in other instances, or at other times in the same individual, it is deferred as long as three hours. The heartburn which is complained of before food is taken is the postponed heartburn caused by the last meal.

One kind of food often brings it on as much as any other, and it is frequently worse after the earlier meals of the day than the later. It comes on suddenly, and often disappears as quickly.

The *causes* of heartburn are harassing mental emotions, over-anxiety, watching, pressure over the stomach (therefore common among shoemakers, seamstresses, clerks, and others whose ordinary occupations involve pressure upon the pit of the stomach), general debility, and improper food.

The *treatment* of heartburn consists, in the first place, in the removal of the cause of the trouble. Sponging the body with cold sea-water, and the use of the shower-bath, are strongly to be recommended. Often great advantage is derived from the cold sponging or douching of the belly, which may readily be done while sitting in a hip-bath. This treatment should be followed up with the administration of *the tonic* in the list of the Standard Domestic Remedies.

In some cases the juice of a lemon affords relief; in others a dose of lime-water or a teaspoonful of baking soda, in a wineglassful of water, taken immediately after meals. A quarter of a teaspoonful of calcined magnesia is also a useful palliative.

WATER-BRASH.

Water-brash consists in raising into the mouth a burning, sour fluid. It is very apt to be associated with heartburn.

The use of the following powders will be productive of great benefit:—

Take of—
Bicarbonate of soda (baking soda), two drachms.
Subnitrate of bismuth, three drachms. Mix.
Divide into 12 powders.

One of these powders is to be taken after each meal.

The rectified oil of amber is also a most excellent remedy:—

Take of—
Rectified oil of amber, two fluidrachms.
Gum-Arabic mixture, two and a half fluidounces.
Mix.

A teaspoonful after meals.

SOUR STOMACH.

For sourness of the stomach the prescription of soda and bismuth just given is of value. Lime-water in doses of a teaspoonful, and calcined magnesia in doses of a quarter of a teaspoonful, afford relief. These remedies, in order to be of permanent benefit, must be combined with a course of tonic treatment directed to the improvement of the general health.

FLATULENCY.

This is a very troublesome complication of dyspepsia. In bad cases, after each meal, independently

of its quantity or character, the bowels are distended with air, much to the annoyance of the sufferer.

A plaster of assafœtida worn over the stomach is an efficacious remedy. A dessertspoonful of willow charcoal after each meal usually affords prompt relief, by virtue of the gas-absorbent property of the charcoal. A very pleasant way of taking this remedy is to have it inclosed in gelatine capsules, each of which contains ten grains of the heavy vegetable ivory charcoal. Of these capsules two are the ordinary dose. They may be had of many apothecaries.

Immediate relief is often found from the taking of from three to five drops of cajeput oil, and repeating the dose after a short interval; or from the essence of peppermint, in the dose of ten or twenty drops.

PAIN IN THE STOMACH.

Sensations like "being blown out with wind," or feelings of tightness or weight, are sometimes complained of, when, upon examination, the stomach is not found at all distended. These feelings often attend an exhausted condition of the stomach, produced by mental annoyances, too severe and protracted labor, and whatever strains the nervous forces of the system.

Of course, the remedy for this state of things consists in a restoration of the general health. The cure is a matter of hygiene rather than of medicine.

When a *wearing or boring pain* is complained of, increased by pressure upon the stomach, and aggravated by food, then there is probably some disease of

the coats of the stomach. Then counter-irritation over the stomach by means of mustard plasters or blisters, and the internal use of subnitrate of bismuth in doses of twenty grains three times a day, are required. In addition, the stomach must be spared as much as possible. A mixture of equal parts of lime-water and milk, in small quantities at short intervals, affords much nourishment without disturbing the failing organ by calling upon it for any exertion. A nicely broiled mutton-chop may often be eaten in these cases without pain, if preceded by fifteen grains of pepsine.

THE VALUE OF MINERAL SPRINGS FOR DYSPEPTICS.

The various symptoms of dyspepsia, which we have just enumerated, are all more or less benefited by the use of the natural mineral-waters, when these are judiciously chosen and properly taken.

"To the dyspeptic, perhaps, more than others among the numerous sufferers from chronic disease," says Prof. Dickson, of Philadelphia, "the various medicinal springs, diffused over all regions of the globe, are valuable and useful. Of these there are two classes from which he may derive special advantage, the chalybeate (iron) and the mildly purgative. Both these appear to have their remedial virtues much heightened by impregnation with carbonic acid, a chemical agent, fatal when introduced into the lungs, but grateful and pleasantly stimulating to the stomach. Common water, indeed, with which this gas has been

combined by forcible pressure (soda-water), is highly agreeable to most persons, and will often relieve irritability of the stomach, remove nausea, and check vomiting. The Seltzer and Saratoga waters form an innocent luxury for the sound, while they benefit, nay, entirely restore, the otherwise hopelessly sick. These natural formulas we imitate in vain; in vain we combine the agents which chemical analysis has detected in their composition. It has been made a question, concerning which I feel much indifference, whether the benefits obtained at the various watering-places, so much and so beneficially resorted to, are derived from the specific virtues of the crystal well, or by the mere mechanical washing out, or by the exercise and agreeable society which in such resorts entice and amuse the invalid. I say I care not whether the restoration of health and comfort is brought about in either of these modes, or, as I am disposed to think, by means of them all collectively. It suffices to know that a few weeks' or months' residence at, and proper use of, these hygeian streams has often given new life to the despairing dyspeptic; and that many a wretch, brought to their healing fountains a mass of disease, misery, and despondency, has returned home with a frame glowing with ruddy health, and a mind bright with cheerful anticipations."

We need not repeat here what we have said upon page 643 and the ensuing pages in regard to the value of the different springs, and the proper manner of using their waters. In concluding our counsels to the dyspeptic, we would advise all, who fail to be benefited by

other means, to resort to some appropriate natural spring before despairing of recovery.

As prevention is much better than cure, we trust the reader who happily is yet free from any of the forms of dyspepsia, will not neglect to peruse our remarks on the prevention of indigestion and dyspepsia on page 269.

Constipation of the Bowels.

This subject is an important one. Many evils result from constipated bowels. There is no trouble more generally, perhaps, brought on by the imprudent disregard of natural laws than this. The sufferer has himself to blame in most instances; upon his own shoulders rests the responsibility for the long train of consequences which follows costiveness. We shall aim, therefore, in pointing out in detail the causes of this affection, to indicate the means of prevention as well as of cure.

THE CAUSES OF CONSTIPATED BOWELS.

One of the most common of these is *the abuse of purgative medicines.* The injudicious habit is widespread, especially among women, of more or less constantly resorting to opening medicines.

Action and reaction are always equal in the human system as well as out of it. If, therefore, the bowels be excited to undue action by a cathartic, such action will be succeeded by undue depression, calling again for the administration of the cathartic. It seems like a very easy and a perfectly proper thing to get rid of a constipated habit by taking purgative drugs. This impression is confirmed by the *immediate* effects of a dose of opening medicine, as the patient for a brief period after its action feels much lighter and freer. But what are the after-effects? It is found that there is a tendency to increase of constipation in a short

time, accompanied with an unpleasant feeling of fulness of the bowels, with inability to obtain relief in the ordinary way. The natural powers of the bowels have been weakened by the undue stimulation to which they have been subjected by the purgative; they need a certain amount of rest, and cannot resume the even tenor of their course at once. Either this rest must be allowed, which is as imperatively demanded as sleep by the overwrought brain, or another dose of the purgative must be taken. Most people will choose the latter expedient, and seek for relief again by that which benefited them, although temporarily, before. Repetition of the doses of purgative medicines only increases the troubles and augments the demand for more, until finally obstinate constipation becomes established.

The constipation being thus confirmed, the patients hope to *cure* it by means of purgatives. The attempt is of course a vain one. This abuse of purgatives is ascribed by an English physician to the notion which seems to be entertained by not a few persons, that medicine is a necessity of existence. Those affected with this monomania at length hardly feel happy without their daily pill, powder, or draft. It becomes with them an all-absorbing idea, implanted in their very nature, that they cannot preserve health without physic.

We especially wish to condemn the practice of giving frequently and unnecessarily purgatives to infants and young children. Ill-advised mothers may readily in this manner, with the kindest inten-

tions, lay the foundation in their young charges of a permanently constipated habit, which the best-directed efforts in after life may fail to remove or modify. The misery which may result from such a condition of the system established in infancy is very great.

INDOLENT HABITS A CAUSE OF CONSTIPATION.

No one can with impunity spend most of his or her time, without exercise, in a close, hot, ill-ventilated room. A life made up of undue self-indulgence, indolent habits, too much sleep, confinement in badly ventilated and heated rooms, varied only by the exercise which can be had by riding in a close carriage and occasionally stepping out to pay a visit or make a purchase, will be one necessarily characterized by great delicacy and susceptibility to the slightest external impressions, by incapability for any bodily effort, by diminution of intellectual vigor, by imperfect digestion, and by torpor of the bowels. Yet this mode of life is frequently led in our large cities by those whose pecuniary condition renders unnecessary for their support any physical or mental labor. And, singular to relate, these invalids attribute their ill-health to an infliction of Providence. To such we commend the following utterances of a medical moralist: "Grant that a certain proportion of sickness must ever be unavoidable: still it remains an indisputable fact that much of ill-health is self-derived; and it is certainly an injustice done to our God, when evils

resulting entirely from our own infringement of His perfect laws are reflected off ourselves and thrown upon Him. Such injustice is flagrant enough, even in the absence of a full acquaintance with the errors which may originate and retain ill-health; but how inexcusable it is to plead thus in extenuation of our own faulty habits, when such habits have been knowingly and persistently indulged in, contrary to the dictates of reason, common sense, and competent advice! Self-deception is too common a sin, and a very plausible one. When the wish is father to the thought, there exists an aptitude to reason upon false premises."

NEGLECT OF NATURE'S CALLS.

The habitual neglect of proper periods for evacuating the bowels, especially when nature impels, is a frequent cause of constipation. There are many excuses for this neglect. The man of business alleges want of time, as he hurries away immediately after breakfast to his store or counting-house. This thoughtless custom of leaving home so soon as the breakfast is swallowed, without attending to a little duty which by practice might soon become a useful habit, leads to hurtful results because of the frequent absence of convenience just at the right time during the day, as well as through the influence of little difficulties of a social character added to pressure upon business time. This evil, trifling as it may appear, inflicts often serious injury before the sufferer opens his eyes to the gravity of the fact.

We would not be understood to insist upon the after-breakfast period arbitrarily, for, as an English writer on this topic has justly insisted, a too eager desire of the mind for an *instant* response to a voluntary solicitation (fearing the loss of only a few minutes of valuable time) defeats the object in view. The impatient brain concentrates on itself, and renders nugatory all efforts. But to carry out systematically either the morning rule or the evening rule, is without doubt of no little importance to most persons. Every one has probably experienced practically the ill consequences of resisting the natural impulse, in unpleasant weight and distension of the bowels, and ineffective efforts at obtaining relief before bedtime; followed, perhaps, by an uneasy night of tossing about in bed and unpleasant dreams. The involuntary solicitations of the bowels cannot be ignored with entire impunity even by healthy persons, much less by those who are predisposed to irregularities of the bowels.

Besides the constipation which follows a daily and repeated neglect of the natural solicitations, a serious consequence is to be dreaded. The morbid matters thus retained in the intestinal canal may be absorbed into the blood, and poison the whole system. Often gastric fever and bilious attacks with great prostration, and typhoid symptoms, may be traced to the frequent repetition of this unfortunate opposition to the natural impulse.

These remarks are not to be understood as confined to the male sex, whose business engagements tend to produce negligence in regard to the bowels. The evil

also exists among those of the other sex, whose time is to a considerable extent under their own control. They neglect the sudden natural impulse "to save themselves the trouble of *immediately* rising from a comfortable position in an easy-chair or on a sofa; or to avoid the little self-denial demanded in instantly relinquishing the pleasure of an interesting novel, absorbing paragraph in the newspaper, agreeable conversation with a friend, letter-writing, or other matters comparatively trifling when placed in opposition to the performance of a natural call, which (however disagreeable the idea), if not at once responded to, may not again be possible on that day. Sometimes a feeling of modesty, lest sudden departure for a few minutes from society should be noticed as remarkable, presents itself as another barrier, and when we are compelled to throw out a delicate hint on this point, we are met by the rejoinder, 'I cannot attend to the call for appearance's sake.' But all little difficulties will melt away before a little firmness, tact, and self-possession. The duty should always be looked upon as a necessary one; and the self-imposed task of retaining within and carrying about fetid accumulations should be regarded in the most revolting possible aspect, all minor feelings and contingencies yielding. Superadded to this, let there be some substantial measure of reflection upon the ulterior consequences of the self-promotion of intestinal irregularity; which disagreeable consequences, under various phenomena and modifications (according to temperament,

constitution, and collateral circumstances), will surely arise, if the neglect be permitted to become habitual."

OTHER CAUSES OF CONSTIPATION.

There are numerous other causes than those we have just enumerated. Errors of the table, in partaking of a too monotonous, too drying, too stimulating, or too highly concentrated food, often cause costiveness. *Overdone* meat and hard-boiled eggs, and a deficiency of fruit and vegetables in the daily diet, are frequently to blame. Certain mechanical obstructions in the bowels sometimes exist, such as the impaction of cherry-stones, seeds of fruit, pieces of bones, and like hard and indigestible substances which are swallowed. Piles and rheumatic affections occasionally interfere with the free action of the bowels. In old age there is a natural tendency to torpidity of the bowels, particularly when, on account of decrepitude, there is little or no exercise taken. Certain nervous affections lead directly to constipation by interfering with the supply of the nervous force or fluid to the muscular coat of the intestines.

Whatever the cause of the constipation, it is apt to be associated with low spirits, disordered appetite, offensive breath, coated tongue, and a dingy complexion with dark lines under the eyes. The patient ordinarily soon loses all disposition to active exertion; he is troubled with headache and palpitation of the heart, and frequently with neuralgic pains.

THE TREATMENT

Of constipation is ordinarily not difficult if the cause can be recognized and removed.

A person whose bowels cease to be moved in the manner natural to him should at once direct his attention to the discovery of the reason of the change. In regard to the number of evacuations which may be considered natural, each individual is a rule, as it were, to himself. Most people have an evacuation in health once a day. There are some with whom it has always been the rule to go to stool twice a day, and some only once every second or third day. Whatever has been the habit in this respect is the rule of health to each person, and any variation from it is indicative of some disorder.

In the cure of constipation, the great aim in view is to do away with the use of purgative drugs. This cannot be effected at once. A gradual substitution of milder purgatives for the more active ones which have been employed should be sought for. For this purpose, sweet oil, in doses of a tablespoonful at bedtime or an hour before dinner, Seidlitz powders, or Congress water, may be employed in the place of the more powerful cathartic pills or powders which have been resorted to by the patient. There is no remedy, however, which will prove of more benefit than the free use of cold water injections.

The following movements are often effectual in cases of habitual constipation. They may be performed by the patient upon himself:—

Place the tips of the fingers of the right hand over the point of the belly at which a line drawn from the centre of the front surface of the thigh up towards the right ribs would be crossed by a line extending around from the umbilicus. This point will be over the large bowel as it runs upwards to make its turn under the borders of the right ribs to pass across the abdomen, and turn downwards under the borders of the left ribs. Pressure is to be made at this point very lightly. The fingers are then to be carried up along the ascending bowel to the lower borders of the ribs of the right side, thence, without any intermission, directly across to the lower borders of the ribs of the left side, and then downwards in the course of the bowel to the left groin. The fingers must now be pressed firmly into the belly at this latter point, and retained there for fifteen seconds. The hand is then to be removed altogether for a few seconds, when the procedure is to be repeated. The operation may be kept up for a period of from a few minutes to a quarter of an hour or more. If the ends of the fingers be dry and harsh, they should be moistened. When the right hand is tired, the left can be used, and so alternately, but it is better not to alternate them too rapidly. The patient may first try, and may succeed or not. If there be a failure, the attempt must not be abandoned. Invalids themselves will often fail, almost invariably if their bowels be *extremely intractable.* But now the aid of a friend to institute these movements may be invaluable.

Whatever mode of treatment be employed for con-

stipation, it will be comparatively futile if attention be not paid to the regulation of the diet. The food must be wholesome, varied, and digestible. Vegetables, excepting the coarser varieties which produce wind colic, are beneficial. Ripe fruits taken in the morning are always pleasant and very useful. Figs and prunes, oatmeal porridge for breakfast, and bran bread, are well-known laxative articles.

Dr. Tanner says: "There are very few cases of costiveness with dyspepsia, arising from sedentary pursuits, that may not be cured by the sufferer retiring to bed at eleven o'clock, and drinking a tumblerful of spring-water; rising at seven in the morning and taking a bottle of soda-water; then walking for three-quarters of an hour; and afterwards breakfasting upon weak tea with plenty of milk, and meat, bread, etc."

Of course, the bad habits which have led to the costiveness must be avoided before relief can be hoped for from any remedial measures.

The free use of cold water, taken beyond the demands of thirst, several times a day between meals, is a most efficient remedy. Water externally applied is also serviceable. The warm hip-bath and the cold sponge salt-bath, preceded and followed by brisk rubbing of the skin, are very valuable remedies. Even persons with cold hands and feet, and a weak pulse, can bear to be sponged with salt-water, and will be benefited by it. The application to the abdomen at night of a few folds of thin flannel or calico, wrung out in warm water, and covered with oiled silk, paper,

or muslin, will be attended with marked advantage, especially when there is disorder of the liver.

The bowels should be solicited to act at a regular hour of the day, preferably just after breakfast. Exercise each day in the open air, on foot or horseback, should be regularly taken. A tumbler of cold water drunk about two hours after a meal, and followed by a walk or a little sharp exercise of any kind, will be found an excellent expedient in some instances. The regular use of common salt at every meal is often of essential service.

An English physician recommends, in case outdoor exercise cannot be had sufficiently often, at least twice a day, that "a pair of light dumb-bells or clubs, or a skipping-rope, should be regular articles of bedroom or dressing-room furniture, and should be used *every* morning on rising (after swallowing a glass of cold water) and before the usual matutinal ablution. The gymnasium, when approved of and easily accessible, may be highly useful, and an excellent practice consists in raising up the body and legs by means of the hands grasping a cross pole or rope just within reach. Thus we strengthen the abdominal muscles and promote their more powerful contraction upon the intestines. Rowing in a boat, or an imitation of it in the gymnasium, is very advantageous. Horse exercise is, when convenient, an excellent auxiliary for the relief of this kind of constipation, particularly for the physically weak, whose previous habits have unfitted them for *brisk* walking exercise. But walking and riding will be most advantageously used in alter-

nation. As with walking, so with riding, motion should always be rapid while it lasts, but each period of exercise should be sufficiently limited in duration to guard against subsequent lassitude or fatigue."

In the treatment of the *constipation of old age* nothing is of so much value as a daily walk or ride. The use of oily articles of food, such as butter, bacon, etc., also alleviates the costiveness. The sexagenarian should remember, however, that it is not natural for him to have the same activity of the bowels as he had in early youth. A daily evacuation, which is the rule in early and mature life, may be set down as an excess in an old man, still more in an old woman. A movement every other day is all that need be desired or looked for in perfect health in advanced life.

The use of the water of Anderson's spring at Bedford, Pennsylvania, is often very beneficial in cases of obstinate constipation. The same remark is true of several of the Saratoga springs.

The movements employed in "the movement cure" for constipation are described on page 668.

A tea made of white walnut (p. 733) or of dandelion (p. 736) may be employed with advantage.

Diarrhœa or Looseness.

Diarrhœa is a disease in which the evacuations from the bowels are frequent and loose. There is also usually a furred tongue, impaired appetite, and, when the discharges are abundant and long continued, loss of strength and flesh.

THE CAUSES

Of diarrhœa are quite numerous. The most common of all is a fault in the food, which is either of improper quantity or quality. Whenever food which in itself is perfectly unirritating is undigested from any cause, as, for instance, weakness of the stomach, it is very apt to lead to an attack of diarrhœa. The use of decaying vegetable or animal matters is, as is well known doubtless to the reader, often the cause of bowel complaint. Exposure to extreme cold, or, still more frequently, great heat of the weather, will often induce diarrhœa. Anxiety and mental emotion may alone occasion this disorder of the intestinal canal. Diarrhœa, besides being a disease in itself, that is to say, the only disorder present, is frequently a symptom of other diseases, such as typhoid fever, the advanced stages of consumption, etc.

The *fatality* of diarrhœa is, as a rule, not great. The very young and the very old, however, frequently die from it; so also do those who are very much exhausted by illness.

When the disease runs into the *chronic* form, it

is very difficult to get rid of. Many of the soldiers in our late war were months and years recovering from it.

THE TREATMENT

In mild cases consists simply in rest. The patient should merely lie down and keep quiet. The upright position and motion of every kind increase the frequency of the evacuations. But little food or drink should be taken. This treatment, with perhaps a dessertspoonful or tablespoonful of paregoric or a few drops of laudanum, will usually be all that is required in a mild attack.

If the diarrhœa has been caused by the eating of indigestible or irritating food, it is well to begin the treatment by a dose of a purgative medicine, in order to secure as soon as possible the expulsion from the bowels of the offending material. A small tablespoonful of castor oil is an excellent and familiar remedy which operates mildly and freely. Instead of the oil, a dose of the *cathartic* we have recommended among the Standard Domestic Remedies may be taken.

Should the looseness persist at all after resort to the above treatment, then astringents must be administered. Of these none is better than the astringent recommended on page 772. This should be given two or three times a day, in the dose directed, and at night a dose of the *febrifuge* (p. 777) taken. A hot foot-bath is useful in the evening, particularly if the skin be hot and dry.

Attention must always be paid to the diet, which

should be very plain and simple during and for some days after the attack.

CHRONIC DIARRHŒA.

Chronic or long-standing diarrhœa is much more difficult of treatment than the simple form of the affection. The diet in these cases, though light and easily digestible, must be nourishing. The coarser kinds of vegetables are to be avoided altogether. Exposure to cold and wet must be guarded against; but exercise in the open air, when the weather is favorable, is of benefit. In obstinate cases a change of climate or a long sea-voyage will frequently prove efficacious.

The following prescription has a deserved reputation in cases of chronic diarrhœa:—

> Take of—
> Subnitrate of bismuth, one ounce.
> Tannin,
> Dover's powder, of each, one drachm. Mix.
> Divide into twenty powders.

One of these powders is to be taken three times a day.

Directions for the *prevention* of diarrhœa will be found on page 272.

Dysentery, or Bloody Flux.

This disease must not be confounded with diarrhœa. Both diarrhœa and dysentery are characterized by frequent passages, but here the resemblance, to a great extent, ceases. In dysentery there is usually more or less fever; the movements of the bowels are preceded by colicky pains, and accompanied by straining and bearing down; the passages are scanty and *mixed with blood;* there is thirst, restlessness, and great loss of strength. These symptoms, particularly the pain and presence of blood in the stools, distinguish it from diarrhœa. It frequently happens, however, that dysentery is ushered in by a simple diarrhœa of several days' duration.

ITS FATAL CHARACTER WHEN EPIDEMIC.

This affection has in all times proved one of the most severe scourges of large armies and fleets, even in temperate regions. Not unfrequently the number of soldiers and sailors sick of it exceeds that of those sick from all other diseases combined. In all the European wars during the last two centuries it has followed in the track of the great armies. In 1748 it was active in the destruction of the British army in Holland. In 1792 it decimated the French, Prussian, and Austrian armies. The troops in the Crimea suffered severely from it in 1854. In the words of Sir Ranald Martin: "It is the disease of the famished garrisons of besieged towns, of barren encampments, and of

fleets navigating tropical seas, where fruits and vegetables cannot be procured. During the Peninsular war, the first Burmese war, and the late war with Russia, dysentery was one of the most prevalent and fatal diseases which reduced the strength of the armies." During our own late war, about one-fourth of all the cases of disease reported during the first two years of the war were of dysentery. After camp fever, camp dysentery carried off more soldiers from both armies than any other disease.

This affection, with its complications, is the great cause of death among the new-comers to tropical climates.

THE CAUSES

Of dysentery are quite numerous. In some cases it is epidemic, when its ravages in the community are very great. In unhealthy localities and in prisons it not unfrequently becomes epidemic, and then appears to be contagious in character. Indeed, by many physicians it is regarded as always contagious.

Exposure to wet and cold will occasion it in those liable to an attack. Such exposure is particularly injurious in warm climates, in the chilliness of the evening after a hot day. Sleeping on the damp ground or between damp sheets will also give rise to it. Hence soldiers and travellers are much exposed to it. The malarial poison which produces chills and fevers also aids in the development of dysentery. Bad or insufficient food, excessive and continued fatigue, want of fresh vegetables and fruit, insufficient clothing and

bedding, and a confined, unwholesome air, all create a strong predisposition to an invasion of the disease. It is under these influences that those violent forms of dysentery arise which depopulate armies, fleets, and large cities.

Dysentery is frequently associated with the various forms of bilious fever, constituting what is called bilious fever with flux.

The camp dysentery which prevailed in our own armies during the war was largely caused by the scorbutic taint of many of the men, as was shown by the increased frequency of the complaint whenever the supplies of fresh vegetables and fruits were deficient. The influence of the season was very marked, the disease being more prevalent in the summer and autumn months.

THE SYMPTOMS

Of dysentery are, in brief, the following:—

At the outset of the disease there is a feeling of discomfort and pain in the bowels of a griping character, with a frequent desire to go to stool. As the disease advances, the desire to empty the bowels becomes more frequent and the evacuations thin and bloody. These frequent passages afford the patient no relief, but, on the contrary, the straining efforts increase his discomfort. With these symptoms, there is more or less fever, great thirst, no appetite, furred tongue, and much prostration.

In fatal cases of the disease, the belly becomes distended and very sore to the touch; the patient is

unable to sleep or to get more than a few short naps; the tongue is red and glazed; the discharges very loose and offensive; there is hiccough; a disagreeable, corpse-like odor from the body; and great weakness and loss of flesh—death soon closing the scene.

Directions for the *prevention* of dysentery will be found on page 272.

THE TREATMENT

Of dysentery should be instituted as early as possible in the affection. The patient should go at once to bed and remain there until well. Even in the mildest cases, "keeping about" is a dangerous folly. The sick-room should be kept pure and well ventilated, and the diet must receive close attention. The food should be of a light and unstimulating character. Milk, cream, rice, and thin animal broths are to be taken freely by the patient, who must be supported by nourishment. Milk boiled with flour makes an excellent article of food, which should be given as often as possible during the day; as it is most grateful to the sufferer and beneficial when cold, it may be well iced. Small pieces of ice swallowed every now and then are pleasant and soothing to the stomach and relieve the nausea. Good beef-tea and extract of beef (see pp. 490 and 492) are nutritious preparations which are very useful in this affection; so also are raw eggs and ripe grapes.

The warm bath may be employed with advantage. The application of large poultices over the bowels affords great relief. An injection of twenty-five or

thirty drops of laudanum in three or four tablespoonsful of starch-water frequently relieves the pain.

When the discharges are offensive, charcoal is of service; it may be given in the dose of a teaspoonful morning and evening, in a little jelly. Blackberry tea is a useful domestic remedy; for the dose and manner of preparing it, see p. 728.

One of the remedies most frequently employed at the present time is *ipecacuanha*. The powder is the form selected, and the dose is a large one. The following treatment is that employed in the practice of many physicians and hospitals: A large hot flaxseed poultice, containing a couple of tablespoonsful of mustard, is applied over the stomach; an injection of thirty drops of laudanum in a small wineglassful of starch-water is carefully administered; and then, in about three-quarters of an hour, thirty grains of the powder of ipecac are given, either as a large pill or mixed with some jelly or thick syrup. For three or four hours previous to the administration of the ipecac the patient must be forbidden to take any water or other fluids. A second dose of this medicine is not required. When given in this large dose, it seldom produces any sickness at the stomach or vomiting, but quiets the excessive action of the bowels, acts kindly upon the liver, and induces a gentle and favorable moisture of the skin.

In *long-standing* cases of dysentery it is often necessary to prescribe a change of climate. A hot salt-bath daily, or several times a week, just before going to bed, is highly recommended in chronic

cases. The food should be nourishing, and whatever is found to disagree carefully avoided. The sleeping-room must be warm and dry, but well ventilated, and flannel worn next the skin at all seasons of the year. Some army surgeons give fifteen grains of powdered ipecac, on an empty stomach, twice a day, in the morning and evening, lessening the dose as the patient improves to ten and then to eight grains a day at bed-time. When the ipecac is stopped, the patient should take for a number of weeks after, to confirm, as it were, the cure, ten drops of the muriatic tincture of iron in a wineglassful of sweetened water (drawn into the mouth through a straw).

Good nursing is of the utmost importance in dysentery. Treatment by absolute rest to the body and bowels in bed, by scrupulous cleanliness of the person and clothes, by a pure warm atmosphere, and by a bland but nourishing diet, is of more consequence than by any medicine alone.

Liver Complaints.

The liver is subject to a large number of disorders and diseases, some slight, some serious in their nature. Those who live in warm climates are particularly liable to affections of this organ. Many forms of liver complaints, such, for example, as enlargement, wasting, the presence of tumors, fatty or waxy degeneration, and the like, are unrecognizable by the patient himself. Their serious character will lead him to seek medical advice. Even for the educated physician there is probably no class of diseases more difficult to recognize exactly than diseases of the liver. We cannot hope, therefore, to give our reader any information which will aid him in detecting or treating these obscure and difficult maladies. On one subject, however, we believe we can give him some useful facts, namely, in regard to

JAUNDICE.

Jaundice may be defined as a yellowness of the skin and eyes, and indeed of all the tissues and secretions of the body. This yellowness is caused by their being impregnated with the coloring matter of the bile. The word jaundice is derived from the French word *jaune*, which means yellow. The term for jaundice which is used by physicians (*icterus*) is derived from the Greek word for the golden thrush, a bird with golden plumage, the sight of which by a jaundiced person was believed by the ancients to be death

to the bird, but recovery to the patient. Jaundice is also known under the name of the yellows.

THE SYMPTOMS.

When the action or substance of the liver or bile-duct is disordered so as to cause the accumulation of the coloring matter of the bile (which is a fluid secreted by the liver) in the blood, the jaundiced tint penetrates every part of the body that is permeated by the blood—even the brain and bones. The skin is especially apt to be deeply tinged, but the yellowness is usually first observed in the whites of the eyes and roots of the nails. In slight cases the eyes alone are discolored. In severe cases the tongue becomes distinctly yellow.

The color of the skin varies from a pale sulphur or lemon color to a deep olive or bronzed hue. The tint varies with the cause and duration of the disease, and with the age, the natural complexion, and the amount of fat in the individual. It is lighter in young persons of fair complexion and with plenty of fat than in the old, the wrinkled, and dark-complexioned patient.

A bitter taste in the mouth and much thirst are often complained of by the jaundiced. The digestion is usually disordered; there is, in many cases, constipation and flatulence. The motions of the bowels present a pale drab or clay color. This is due to the absence of the coloring matter of the bile which is

naturally there, but which has now been absorbed into the blood and carried to all parts of the body.

Itching of the skin, without any eruption, is a very troublesome and constant symptom. Sometimes excessive eruptions appear on the skin, and the patient suffers from boils and carbuncles. When the jaundice has lasted a length of time, the blood becomes poor and watery, and the patient liable to attacks of bleeding from the bowels and stomach. The disordered condition of the digestive organs and of the blood necessarily soon produces general debility, low spirits, and irritability of the temper.

It is a common notion that to the jaundiced eye all things appear yellow. This is not always, nor perhaps often, the case. In some instances, however, all white objects appear to the patient to be yellow. Occasionally, objects seem yellow when looked at with one eye, but not with the other.

THE CAUSES OF JAUNDICE

Are numerous. The passage of gall-stones is a frequent cause, particularly in middle and advanced life, and in those who lead sedentary lives. In some few instances, foreign bodies, such as cherry-stones, apple or currant seeds, have been known to find a lodgement in the bile-duct, closing up the opening by which the bile is discharged into the bowel, and thus giving rise to jaundice. In these instances, however, it is probable that the bile-duct has already been dilated by the passage of a gall-stone. Pregnancy,

associated with constipation, sometimes gives rise to jaundice, which disappears after the birth of the child. Violent and long-continued vomiting may lead to jaundice. Very warm weather, long protracted, appears to have a decided influence in producing it. Thus, in the early fall a mild form of jaundice not unfrequently affects young persons, and particularly young girls, after an extremely hot summer. Various fevers give rise to jaundice, so also do some diseases of the nervous system. Dyspepsia and the abuse of alcohol are frequently the active causes.

THE TREATMENT

Of jaundice varies with the cause. In all cases, however, the diet should be light and easy of digestion, fats, sugars, and malt liquors being forbidden.

As the bowels in most instances are constipated, laxatives will be necessary. An excellent pill is the following:—

> Take of—
> Rhubarb, six grains.
> Blue mass, two grains.
> Extract of henbane, two grains. Mix.
> Divide into three pills; to be taken at night.

Or, a tablespoonful of cream of tartar may be taken three times a day until the bowels are actively moved.

Colic and various other dyspeptic symptoms may demand attention. The use of peppermint and cinnamon will relieve the flatulence. So also will purified bile from the ox or pig, in doses of from three to six

grains, about two hours after meals. These dyspeptic symptoms are due to the absence of bile in the bowels —because of its retention in the liver and absorption into the blood—hence the usefulness of administering animal bile.

The itching of the skin will be relieved by warm baths, by the use of the flesh-brush, and by taking twenty grains of *bicarbonate of potash* in water three times a day.

When the patient is much debilitated, the *tonic* recommended among the Standard Domestic Remedies will be found of great service.

The hot air-bath (page 468) is often beneficial; so also are some of the natural mineral-waters (pages 646, 647).

CHAPTER X.

DISEASES OF THE NERVES.

CONTENTS.

NEURALGIA. Definition—Circumstances under which neuralgia appears—Influence of age, previous health, season of the year, climate—Is it dangerous?—The duration of neuralgia—The causes—The symptoms—Varieties of neuralgia—Neuralgia of the face—Brow-ague—Sciatica—Neuralgia of the side—The treatment: by diet, by medicines.

EPILEPSY. Definition of the disease—Circumstances under which it appears—Influence of age, sex, previous health, diet, inheritance—The causes—The duration—The symptoms—The treatment.

CATALEPSY. Nature of the affection—Its causes and remedies.

APOPLEXY. Causes, symptoms, and treatment.

PALSY. The influences which induce it—The probabilities as to recovery—How to treat it.

St. VITUS' DANCE. Definition—Origin—Symptoms—Treatment.

NEURALGIA.

THIS is a disease which consists of pain, and nothing else. In neuralgia there is ordinarily no inflammation, no swelling, no fever; the trouble is in the nerves, and manifests itself only by pain of a darting, stabbing, boring, or burning character. This pain usually comes on suddenly, and, after lasting for a certain length of time, either passes entirely away or becomes much less severe. Succeeding an attack, the affected parts remain sore for a while and tender to the touch.

CIRCUMSTANCES UNDER WHICH IT APPEARS.

The *age* has something to do with the liability to an attack of neuralgia. The disease is much more common after than before the fortieth year of life.

The Previous Health.—At the time of the first attack of neuralgia, the condition of the patient is almost universally one of general debility. The individual is usually pale, the blood has been impoverished by some exhausting illness, fatigue, or sorrow. Even in those cases in which there is an externally healthy appearance, there is debility of the nervous system. This loss of general nervous strength precedes every invasion of neuralgia.

Season of the Year.—Cold is one of the most prominent causes of an attack of neuralgia in those at all predisposed to the affection. Those seasons of the year in which there are cold winds are most dangerous to neuralgics. A very cold wind, mingled with sleet or driving rain, which keeps the skin sodden, is the worst influence to which such persons can be exposed.

Climatic Influences.—Those districts which are subject to ague or to damp and harsh cold winds are bad for persons with delicate nervous susceptibilities.

IS IT DANGEROUS?

A distinguished authority on nervous diseases has recorded as one of the characteristics of neuralgia the absence of danger to life. This statement is in a general sense a true one. But there are some cases

of neuralgia of such severity as to break down the health and destroy the life of the sufferer. Some serious forms of neuralgia of the face occasionally lead to apoplexy and death.

THE DURATION OF THE DISEASE.

This varies with the character, cause, and location of the disease, the state of the general health, and the age of the patient. Most of the neuralgias of youth, which are comparatively rare and slight, either disappear altogether after a first attack, or gradually take their departure as the body consolidates. But neuralgia which first develops itself in old age is very likely, although apparently cured for a time, to return and continue to torment the patient for the rest of his life. The family history is also of importance in regard to the probable duration of the disease. Those whose families are liable to neuralgic affections rarely get rid altogether of a tendency to a return of the pain on a little exposure or indiscretion.

THE CAUSES OF NEURALGIA.

One of the most active causes is inheritance. The disease is transmissible from parent to child. It is a curious fact, also, that the children and grandchildren of those who have suffered from insanity, epilepsy, St. Vitus' dance, palsy, and the tendency to uncontrollable excesses in the use of alcohol, are very liable to severe and obstinate forms of neuralgia.

The children of consumptive parents are also predisposed to neuralgic attacks on the slightest provocation.

Exposure to cold drafts of air is a common cause of an attack of neuralgia; so, also, is a sudden change of temperature. A wound or blow is sometimes followed by neuralgic pain which lasts long after the original injury has healed. Disorders of the stomach and decay of the teeth occasionally act as causes. The poisons of rheumatism and gout, of chills and fever, of lead and of large amounts of alcohol, are often to blame. Whatever tends to break down the general health and exhaust the nervous forces, lays the patient open to the attack of neuralgia.

In those predisposed to the affection, very slight occurrences, such as a sudden jar or shake, or mental emotion, are sufficient to bring it on.

Persons who have attempted to commit suicide by taking arsenic, suffer excruciating pains along the course of the nerves of the limbs during convalescence.

THE SYMPTOMS.

The manner in which the attack comes on is quite characteristic. There is always a degree of suddenness at the outset. "When produced by a violent shock, it may, and often does," says Dr. Anstie, "spring into full development and severity at once; of which, perhaps, the most striking example is the sudden and violent neuralgic pain of the eyebrow

which some persons experience from swallowing a lump of undissolved ice. Usually, however, the first warning is a sudden, not very severe, and altogether transient, dart of pain. The patient has probably been suffering from some degree of general fatigue and malaise, and the skin of the affected part has been somewhat numb, when a sudden slight stitch of pain darts into the nerve. It ceases immediately, but in a few seconds or minutes returns; and these darts of pain recur more and more frequently till at last they blend themselves together in such a manner that the patient suffers continuous and violent pain for a minute or so, then experiences a short intermission, and then the pain returns again, and so on. These intermittent spasms of pain go on recurring for one or several hours; then the intermissions become longer, the pains slighter, and at last the attack wears itself out. Such is generally the history of first attacks, especially in subjects who are not past the middle age, nor particularly debilitated from any special cause."

The pain is often the most severe that the human system ever is called upon to endure. It varies in character; thus, some patients have compared it to a powerful electric shock, others to the conflagration of gunpowder.

The periods of time between the attacks are uncertain. Sometimes they come on several times a day, at other times the patient will be free for weeks, months, or a year.

VARIETIES OF THE DISEASE.

The principal forms of neuralgia are *tic douloureux*, or neuralgia of the face; *brow-ague*, or neuralgia of the forehead; *sciatica*, or neuralgia of the back of the thigh; and neuralgic pain in the side, between the ribs. We will consider first the nature of each of these affections before discussing their treatment.

NEURALGIA OF THE FACE, OR TIC DOULOUREUX.

The torture is usually confined to one side of the face. Sometimes the pain shoots over the cheek, lower eyelid, and upper lip; sometimes it is confined to the lower lip, teeth, chin, and side of the tongue.

As the presence of decayed teeth is alone sufficient to excite this form of the disease, the mouth in all cases should be carefully examined by a competent dentist. In one case on record a lady suffered severe pain in the ear and side of the neck for three months, and when she applied for advice had been deaf for many days. Upon the removal of a diseased molar tooth, the hearing returned in an hour. In another, happily quite extraordinary case, a young lady scarcely twenty years of age had suffered for more than a year from deep-seated pains in the face, teeth, and gums. The pain had gradually extended to all the teeth, and, one by one, all in the lower jaw excepting four had been removed. Every mode of treatment was resorted to without success. She finally became unable to take any solid food, the teeth of the upper jaw

becoming so tender that the slightest touch caused acute pain. There was a constant flow of saliva from the mouth, while the sight of one eye was affected and the lids had been closed for two months, when the first molar tooth of the upper jaw on the side of the affected eye was extracted. Its removal gave great relief, and in two days the eye could be opened in a natural manner. But a perfect cure was only obtained by removing all the teeth.

The most formidable forms of neuralgia of the face occur in advanced life. In severe cases there is spasm of the muscles, the attacks of pain being accompanied with hideous involuntary grimaces. The general appearance of a confirmed neuralgic of this class is very distressing. He is moody and low-spirited, he fears the slightest motion or the least draft of air. In consequence of the pain attending attempts at mastication, he is apt to be imperfectly nourished. In some unfortunate instances the patient seeks the stupefaction of intoxicating drinks, a most disastrous course, for it increases the disorder of the nervous system.

BROW-AGUE, OR NEURALGIA OF THE FOREHEAD.

This is an affection to which women are frequent victims. The pain is confined to one side of the brow and forehead. The one-sided character of the pain is not frequently detected in the earlier attacks, but as they increase in frequency and severity, this peculiarity is noticed. Brow-ague, or megrims as it is sometimes

called, is increased by dyspepsia, and is apt to be accompanied with nausea and vomiting when the pain is severe. In some instances vomiting relieves the pain, and the patient sinks into a comfortable sleep, awaking free from suffering.

This disease almost always is associated with general debility. In its more severe forms it is a terrible affection. Occasionally the attacks come on only at certain hours of the day, a peculiarity which has given the malady the name of sun-pain, from the circumstance that it sometimes appears with the rising and goes with the setting sun.

SCIATICA.

In this variety of neuralgia the pain is situated along the back of the thigh, following the course of a large nerve (the great sciatic). The pain frequently extends into the leg and foot.

The young are comparatively exempt from this affection. Above the age of thirty, the number of male patients is much in excess of the female patients attacked. The causes are exposure to cold and moisture, rheumatism, over-fatigue, and excesses of various kinds.

It is very rare that both limbs are affected. The disease lasts from several weeks to a number of months.

NEURALGIA OF THE SIDE.

This form of neuralgia is very apt to be mistaken for pleurisy, the stitch in the side misleading the

patient, and occasionally the physician who neglects a careful examination of the chest. There is no variety of neuralgia more common than this. It not unfrequently accompanies consumption. All the vague pains which affect the chest-walls of the consumptive patient are not neuralgic, but it often happens that one of the earliest symptoms of this disease of the lungs is a well-marked attack of neuralgia of the side. The subjects are generally women of a sanguine temperament and quick intelligence.

THE TREATMENT

Of neuralgia consists chiefly in the improvement of the general health, and the removal of the special cause which is found to be at work.

The disease is, as we have before mentioned, almost always preceded and accompanied by debility, hence the importance of a tonic and restorative treatment. The patient should take exercise in the open air; be warmly clad with flannel next the skin; have a nourishing diet, with plenty of fat; avoid tea, but take plenty of milk; and shun exposure to cold and dampness. Chamois-leather drawers are useful and comfortable in sciatica.

Neuralgics are particularly apt to neglect all kinds of fat, partly because they dislike it, and partly because they fear it will make them bilious. The following remarks on this subject from the pen of an English physician, Dr. Anstie, of very large experi-

ence with this disease, we commend to the close attention of all our neuralgic readers. "By the time patients have become sufficiently ill with neuralgia to apply to a consulting physician, they have already, in the great majority of cases, got to reject all fatty foods, and have cut down their total nutriment to a very insufficient standard. Young ladies suffering from migraine are especially apt to mismanage themselves to a lamentable extent in this direction. This is natural enough, because the stomach disorder seems to them the origin of the pain, instead of being, as it is, merely a secondary consequence. But it is not only the sufferers from sick headache in whom we find this tendency to insufficient eating, especially of fat; not to mention that all severe pain usually tends to disorder the appetite and make it fastidious, there is nearly always some wiseacre of a friend at hand, ready to suggest that neuralgia is something very like gout, that gout is always aggravated by good living, and therefore that the patient should be 'extremely cautious as to diet;' the end of which is that the poor wretch becomes a half-starved valetudinarian; but, so far from his pain getting better, it steadily becomes worse. I cannot too strongly express the benefits that I have seen accrue, in the most various kinds of neuralgic cases, from persistent efforts to remedy this state of things, and to convert the patient from a valetudinarian to a hearty eater; and I wish particularly to say that this success has always been most marked when I have from the first insisted on fat forming a considerable element of the food.

Cod-liver oil is the preferable form in which to give it. But the very cases in which we most urgently desire to give fats are often those in which the patient's fantastic stomach openly revolts at the idea of the oil. We must then try other fats, and should go on trying one thing after another—butter, cream, even olive or cocoa-nut oil—till we get the patient well into the way of taking a considerable, if possible a decidedly large, daily allowance of fat, without provoking dyspepsia. It is surprising what can be done in this way by perseverance and tact, and it is no less striking to observe the good effects of the treatment."

Not only should the amount of fat taken be increased, but the total amount of food. Let those patients who are prejudiced against such a method of treatment *try it.* The quantity of food should be increased about one-third more than the patient would have probably eaten in health. Particularly in the very young and the aged who are sufferers, is this generous diet important—and in all cases it constitutes a sound basis for other treatment.

Of all medicines, iron is the most beneficial in the majority of cases. We, therefore, strongly recommend the *tonic* of the Standard Domestic Remedies.

The carbonate of iron is a useful preparation, given in doses of fifteen or twenty grains, two or three times a day, in molasses. This method of treatment, if persevered in for several months, will almost always relieve and frequently cure this justly dreaded disease. While using it, the bowels must be kept clear

by securing a daily passage by small doses of laxative medicines if necessary, such as a Seidlitz powder in the morning, a small quantity of cream of tartar or citrate of magnesia, or of the *purgative* of the Standard Domestic Remedy series.

In some instances electricity or galvanism is of much service.

Sal-ammoniac is often very beneficial. Twenty grains of it should be given at a dose, mixed in a half tumbler or more of water, while the attack of pain is on. This dose should be repeated every hour; but if after the fourth there is no diminution of the pain, it is useless to persevere. When the pain is relieved by it, as is often the case, the medicine should be continued in fifteen-grain doses three times a day for a week after the attack.

A liniment made of a mixture of equal parts of tincture of aconite and soap liniment, rubbed over the painful part, is useful. Or, the pure tincture of aconite may be rubbed on with a rag until a prickling sensation is produced.

Tea generally aggravates neuralgia, and should therefore be avoided by those suffering from it; coffee, on the contrary, is often of service, particularly if made strong. A cup of strong coffee in which the juice of a lemon has been squeezed affords relief, especially in neuralgic headache.

In neuralgic pain of the face, the application of a hot salt-bag to the back of the neck at night, with the use of arsenic during the day, is of advantage

in many cases. The following prescription may be given:—

Take of—
Fowler's solution of arsenic, one fluidrachm.
Aromatic syrup of rhubarb, three fluidounces.
Mix.
Take a teaspoonful, three times a day, after meals.

A mixture of hemlock and sal-ammoniac is frequently prescribed with success for neuralgic headache:—

Take of—
Fluid extract of hemlock, one fluidrachm.
Sal-ammoniac three drachms.
Syrup of orange-peel,
Water, of each, two fluidounces. Mix.
A teaspoonful three times a day

Epilepsy.

Epilepsy is a disease of the nervous system characterized by convulsions or fits. The fits are attended with unconsciousness. They come on at uncertain intervals, and last ordinarily from five to twenty minutes. Sometimes they make their appearance suddenly, surprising the patient without warning, but usually they are ushered in by a peculiar feeling. This feeling is often described as the sensation of a current of cold air or vapor, which, rising in some part of the body, proceeds towards the head, and as soon as it reaches the brain the patient falls. After the fit, the patient has no recollection of what occurred during it, but remains dull and weak for some time after. We shall shortly describe more closely an epileptic seizure or fit.

THE CIRCUMSTANCES UNDER WHICH EPILEPSY APPEARS.

Age.—The period of life between ten and twenty years of age is the one in which the greatest number of epileptic patients are first affected, and of these by far the larger number show their earliest symptoms between the ages of thirteen and seventeen inclusive. Between twenty-five and thirty-five there are comparatively few first attacks. But after fifty years of age the tendency to the disease increases.

Sex.—Under the age of seven there is no difference between the sexes in regard to their liability to epilepsy. But after puberty it is more common

among males than females. There is a curious exception to this rule; all authorities agree that in France, or at least in Paris, there are more women affected with epilepsy than men. Esquirol, one of the best French authorities on the subject, alleges that the number of women attacked is one-third greater than that of men. English physicians are unanimous in their statements as to the greater prevalence of the disease among men. The Registrar-General of England says: "The mortality of males at all ages from epilepsy is 52.26 per cent., of females 47.73 per cent., and that, therefore, 4.53 per cent. of male deaths occur from epilepsy in excess of female deaths from that cause; or, to put it in a different way, we find that the average male deaths in one year from epilepsy are 961.3, of females 878.1; so that annually, in England and Wales, 83.2 more males die epileptic than females." From the United States Census we learn that in America more men die epileptic than women.

Not only is the disease more common among men than women, but the former when attacked are more apt to die of the affection than the latter.

Previous Health.—When there is a powerful tendency to epilepsy, it often appears while the patient is in the best of health. Severe diseases, such as fevers and smallpox, and injuries about the head, or shocks to the nervous system, predispose to the disease. So, also, in some instances, do rheumatic affections.

Diet.—Errors in diet are common exciting causes of an attack, in those at all inclined to the disease. European army surgeons report as a frequent cause

of a fit among soldiers, gorging the stomach with beer.

Inheritance.—A tendency to epilepsy is, without question, frequently hereditary. It may appear in both parent and child, or, skipping over a generation, pass to the grandchild.

THE CAUSES OF EPILEPSY.

We have just mentioned the influence of inheritance as a cause. Dissipation and all forms of excess are prominent among the agencies which lead to this terrible disease. Malformations of the head, insanity, and injuries of the brain, are often to blame for the invasion. Mental emotion and fright are common causes. Thus, very appropriately, Raphael, in his great picture of the Transfiguration, represents a boy falling into an epileptic fit. The irritation of teething in children so frequently induces fits, that in France one of the terms by which epilepsy is designated is "*mal des enfans*"—the diseases of children. Worms and the poison of rheumatism occasionally have something to do with the development of epilepsy.

THE DURATION OF THE DISEASE.

The average duration of a fit is from five to twenty minutes. Sometimes, however, it lasts for an hour or more. In children it rarely exceeds a few minutes' duration. The intervals between the fits are variable. At first three or four months may elapse, but soon

they come more frequently, until finally scarcely a day passes without one or more fits.

The epileptic convulsions which attack some children during the period of teething, disappear as a rule about the second or third year. When the disease first makes its appearance about the third or fourth year, it generally is cured before the age of puberty is attained—provided it be not the result of inheritance. Epileptics seized after the age of puberty are difficult of cure. Before the discovery of the bromide of potassium very few cases ever recovered. The wonderful effects of this remedy mark a new era in the history of this disease. When epilepsy is conjoined with insanity, the case is nearly hopeless.

The probability of cure in any given case is the greater the less the number of fits that have occurred before the treatment. One fit scarcely ever leaves behind it a permanent ill effect. The case after the first fit is, therefore, a very hopeful one. When the number of fits is very great, a sort of habit is formed which it is very difficult to eradicate.

THE SYMPTOMS

Of epilepsy may be divided into those which precede a fit and those which constitute the fit.

One of the earliest symptoms, which sometimes long precedes an attack, or may indeed not be followed by the disease at all, but pass off without apparent evil result, is that peculiar feeling so well described by Charles Dickens as "a feeling which comes over us

occasionally, of what we are saying and doing having been said or done before, in a remote time—of our having been surrounded, dim ages ago, by the same faces, objects, and circumstances—of our knowing perfectly what will be said next, as if we suddenly remembered it."

This feeling is not the innocent one that it was evidently thought to be by Mr. Dickens. It indicates a disturbance of the action of the brain, and, particularly when it comes on after over-mental work, should not be lightly regarded. The poets frequently allude to this feeling. Thus Coleridge:—

> "Oft o'er my brain does that strange fancy roll,
> Which makes the present (while the flush doth last)
> Seem a mere semblance of some unknown past,
> Mixed with such feelings as perplex the soul
> Self-questioned in her sleep; and some have said
> We lived, ere yet this robe of flesh we wore."

And, again, Tennyson:—

> "Moreover, something is or seems
> That touches me with mystic gleams
> Like glimpses of forgotten dreams—
>
> Of something felt, like something here;
> Of something done, I know not where;
> Such as no language may declare."

We repeat, that this feeling, if at all frequent or intense, should be regarded as a warning, and lead to a reform in whatever is undermining the healthful action of the brain.

Many epileptics have warnings peculiar to themselves of the approach of a fit. Thus one, when a fit

was approaching, always saw a little old woman in a red cloak advance towards him, and strike him a blow on the head, on receiving which he became unconscious and fell. Others suffer in advance of a fit from headache, dizziness, dimness of vision, sickness at the stomach, or a feeling of terror. The most common premonitory sensation is that known as the *epileptic aura.* This differs in different persons. In some the patient has the sensation of a stream of cold water flowing from the fingers or toes upwards towards the body; others feel as if a spider or insect was creeping over the skin; others as if a current of cold or warm air was passing over the surface of the body, from the extremity of one limb up towards the head; as soon as the moving sensation stops, then the fit comes on. In some patients the fits are ushered in by noises in the ears, such as the ringing of bells or the roaring of the sea; in others the sense of smell is affected, and they are troubled by disagreeable odors; while others, again, are annoyed by unpleasant tastes in the mouth.

DESCRIPTION OF AN EPILEPTIC FIT.

Dr. Aitken, in his works, gives such a graphic description of an epileptic fit, that we reproduce it here, with such verbal alterations as are needed to make it intelligible to the non-medical reader.

In the *adult*, whether the warning symptoms (which we have mentioned above) be or be not present, the attack usually commences by the patient uttering a cry, losing on the instant all knowledge of what is

going on about him, and, falling down in a fit, his mouth all covered with foam. The fits vary from the most trifling movements to the most frightful, terrific, and long-continued struggles. In mild cases, only one limb is convulsed; in others, only the face, the lips, or the eye. A case is related of a lady whose fits were so slight that, although often seized on horseback, she never fell off. In a few seconds she recovered, and resumed the conversation by finishing the sentence she was expressing. The epileptic cry, and the convulsed eye, denoted the true nature of the attack. Attacks so mild may occur many times in the day, and appear for a time to leave no feeling of ill-health behind.

In severe forms of epilepsy the fit is more formidable; the hair stands on end, the forehead is wrinkled, and the brow is knit. If the eyelids be opened, the eye is seen to be red, sometimes convulsively agitated, at other times squinting, and sometimes fixed; more commonly the eyelid is quivering, and half-open, so as to show the lower portion of the white of the eye. The face is red, or livid and swollen, the teeth generally clenched, and the lips covered with foam; sometimes, however, the mouth is open and the tongue thrust forward, and occasionally in this position it is bitten through, or much injured, and the foam about the mouth consequently mixed with blood. The force with which the jaw closes is sometimes so great that teeth have been known to be broken and the jaw dislocated. The limbs, also, are violently convulsed, thrown about in every direction, and with such power

that it often requires three or four persons to prevent the patient seriously hurting himself. The hands are strongly clenched, and the body is often arched backward; when, on the muscles relaxing, the patient may fall to the ground with great force. The pulse is generally frequent, sometimes scarcely perceptible, although the heart-beats are strong and tumultuous. The breathing is noisy, and the skin bathed in sweat. Blood sometimes flows from the eyes, ears, or nose, frightfully expressive of the violence of the attack.

When the fit has reached its crisis, the muscles relax, the movements subside, the breathing becomes more free, the pulse more regular, and the countenance more natural; and at length the patient falls into a heavy sleep, from which he awakes sometimes in good health, but more often shaken, exhausted, and suffering from severe headache, which lasts some hours or even days. In neither case, however, has he the slightest remembrance of what has passed. In other instances, the termination of one fit is but the beginning of another, and the succession is occasionally so continued that the attack, with short intermissions, may last twenty-four or forty-eight hours, or even longer.

When *children*, from teething or other causes, are seized with an epileptic fit, the attack is generally preceded by a hooping or crowing sound. When the fit begins, the thumb is drawn in, the fingers clenched, and the toes bent; the eyes are staring, fixed, or convulsed; the face and limbs pale or livid; the body rigid, and curved backward. These symptoms generally last only a few minutes, when a strong breathing

out of the air in the chest takes place; a fit of crying succeeds, and the child, much exhausted, recovers, and, after a while, falls asleep.

THE TREATMENT

Is now, as we have previously remarked, a much more hopeful one than formerly. The *bromide of potassium* is the best friend the epileptic has. This medicine should be taken, in doses of twenty grains, three times a day. It should be persevered in for a long time. The patient is not safe a single day without it, until he has been entirely free from an attack for at least fifteen or sixteen months.

A gentle purgative, taken every month, increases the usefulness of the bromide of potassium.

Often good results are obtained from combining the bromide of potassium with the bromide of ammonium, ten grains of each, three times a day. Or, the following prescription may be taken, which is that recommended by Dr. Brown-Séquard, the highest medical authority on this disease now living:—

Take of—
Iodide of potassium,
Bromide of potassium, of each, one drachm.
Bromide of ammonium, half a drachm.
Bicarbonate of potash, two scruples.
Infusion of columbo, six fluidounces. Mix.

A teaspoonful before each of the three meals, and two tablespoonsful at bedtime, in water.

The *diet* of the epileptic patient should be light. The patient must live temperately. As the tendency

of epileptics is to overload the stomach, this must be carefully guarded against. Daily exercise in the open air must be insisted upon. The head should be kept cool, and the feet warm. The epileptic should be an early riser.

The treatment of epilepsy occurring in children consists in the use of the warm bath and the administration of bromide of potassium, but in smaller doses than to the adult, in accordance with the rule given on page 549.

The treatment *during a fit* consists in placing the patient on a *large* bed, and in a room with plenty of fresh air; loosening his clothing, especially about the neck; introducing a piece of soft wood between the teeth, to prevent his biting the tongue; and, if the face be very red, apply cold water to the head. The application of mustard plasters to the wrists and ankles is a harmless procedure, though probably not attended with much benefit. There is no medicine which can be administered with advantage during the fit; the principal treatment of a fit lies in preventing the patient from injuring himself by his violent movements.

Catalepsy.

The word catalepsy is derived from the Greek, and means to restrain or hold firmly. It is applied to a disease of the nervous system which consists in a sudden loss of consciousness and of the power of motion—the patient remaining in the same position he had at the moment of seizure: if sitting, continuing to sit; if standing, continuing to stand; the countenance retaining the same expression it had just before the attack.

The attack may last only a few moments, or for several hours, and even days. The patient recovers suddenly, as if awaking from a deep sleep, and has no recollection of what has occurred.

This disease is much more common with the female than the male sex. Nervous, hysterical women are its most frequent victims. It is not dangerous. In some very rare cases it terminates in insanity or softening of the brain. More frequently it is the forerunner of epilepsy.

The "absence of mind" from which many persons suffer is a light and modified form of catalepsy. As Dr. Laycock, in his Treatise on the Nervous Diseases of Women, remarks: "In *brown-study* or reverie the eye is fixed by a muscular action analogous to the cataleptic; and not the eye only, for a limb or the whole body will remain in the same position for many minutes; the senses themselves being in deep abstraction from surrounding objects." Dr. Tanner states that "in some individuals a cataleptic state may be

induced by strongly fixing the attention on one object for a short time. The mental faculties get tired; there is diminished nervous influence or force; and persons so affected then believe that they are unable to move, cannot see, etc., until the so-called *mesmerizer* grants them permission. Examples of this state are also seen in animals—as in birds and rabbits *fascinated* by the glaring eyes of the serpent."

The following case is related upon excellent medical authority. We give it as affording the reader a better picture of the disease than any mere description of the symptoms could do.

A lady, who labored under melancholy, was seized with catalepsy, and presented the following appearances: She was lying in bed motionless, and apparently senseless. Her eyes were open, but there was no rising of the chest, no movement of the nostril, no appearance of breathing. The only signs of life were warmth and a pulse which was 120 and weak. In attempting to arouse her from this senseless state, the trunk of the body was lifted up and placed so far back as to form an obtuse angle with the lower extremities, and in this posture, with nothing to support her, she continued sitting for many minutes. One arm was raised by a bystander, and then the other, and in the posture they were placed they remained. It was a curious sight to see her sitting up, staring lifelessly, her arms outstretched, yet without any visible signs of animation. She was very thin and pallid, and looked like a corpse which had been propped up and stiffened in that attitude. She was now taken out of

bed and placed upright, and attempts were made to rouse her by calling loudly in her ears, but in vain; she stood up indeed, but as inanimate as a statue. The slightest push put her off her balance, and she made no exertion to regain it, and would have fallen, had she not been caught. She went into this state three times; the first attack lasted fourteen hours, the second twelve hours, and the third nine hours, with waking intervals of three days after the first fit, and of one day after the second.

THE TREATMENT

Of catalepsy consists in the improvement of the general health, and the toning up of the nervous system by generous diet, recreation, travel, and tonic remedies. Patients of this character should never be subjected to the charlatanism of mesmerizers. On the contrary, those about them, and who have charge of them, should, by what power of command they have, seek to demesmerize them, and to supply their deficiency of will. The mental and moral influences to which the cataleptic is subjected should be healthy; he or she should be encouraged to combat energetically all tendencies to reverie and absence of mind. Constant, pleasant, mental and physical employment is of the greatest advantage.

The condition called *ecstasy* is similar to catalepsy. The eyes are immovably fixed, and the patient, insensible to what is going on around him, is closely occupied in the contemplation of some imaginary object.

The famous convulsionaries of St. Medard were thus affected, and many of the impostors of the present day are not wilful deceivers, but simply nervous persons, mostly women, suffering from this or some similar disease of the nervous system.

Apoplexy.

By an apoplectic stroke, or apoplexy, is meant a sudden loss of consciousness, feeling, and power of motion. The term is derived from two Greek words which mean to strike by means of—because those attacked fall down as if by means of a blow.

THE CAUSES

Of epilepsy are many of them avoidable. Whatever tends to cause a rush of blood to the head may occasion an attack. For this reason, the immoderate use of intoxicating liquors, tobacco, and opium is sometimes to blame. Violent mental excitement, great heat or cold, blows upon the head, and various diseases of the heart and brain, particularly those associated with advanced life, are common causes of an attack.

THE SYMPTOMS

Are those which precede an attack, which may be properly called *the warnings*, and those which are present during the attack.

Although the apoplexy sometimes appears suddenly in persons who, up to the moment of seizure, feel quite well, yet it is ordinarily ushered in by certain symptoms which give warning of the coming attack. Headache, heaviness and fulness of the head, noise in the ears, flashes before the eyes, sleeplessness, and irritability of the temper, are often complained of for

days in advance. Momentary loss of memory of words or ideas frequently precedes an attack, so also does a peculiar feeling of creeping or numbness of the limbs. Drowsiness and indistinctness of utterance, and partial palsy of one limb or of some of the muscles of the face, or of the eyelids, are very threatening symptoms of an apoplectic stroke.

Apoplectic strokes occur at all seasons of the year and at all hours of the day. Extensive statistical tables have been made in reference to their comparative frequency in the morning, mid-day, and evening. Advanced age furnishes by far the greater number of cases, but it is not unknown among children.

Men are oftener attacked than women. As we pointed out in our work upon the Hygiene and Diseases Peculiar to Men,* this may be accounted for, in part, by the well-known fact that one of the most active causes of apoplexy is the intemperate use of fermented liquors, which, in some constitutions, produce a speedy impairment of the functions of the brain. Alcohol also exerts a pernicious influence, in many instances, upon the heart and arteries. The heart's action is not only increased under its influence, but positive alterations in the structure of the blood-vessels take place. In such instances we find the movements of the heart permanently quickened, and the blood, therefore, driven more forcibly to the brain, while the coats of the arteries, having lost their elasticity by a thickening or thinning of their substance,

* "The Transmission of Life," p. 290.

are more readily ruptured by this forcible current, and hence the tendency to hemorrhage in the brain is vastly increased. The excessive use of tobacco is also supposed to predispose to congestion of the brain, and consequently to apoplectic attacks. As the excessive employment of tobacco and alcohol is essentially a vice of the male sex, we may attribute to these articles, in part, the greater liability to apoplectic attacks to which men are the victims.

The duration of a fit varies from a few hours to several days.

During the fit, the patient is entirely insensible, the breathing is slow and often noisy, the face is pale, the eyes dull and glassy and the pupils large, the skin is cold and clammy, and the power of swallowing is impaired or lost. The bowels are torpid, or act involuntarily. When the patient recovers from the fit, more or less palsy of one or more limbs is apt to remain.

The disease is of course a dangerous one, and the danger increases with each attack that the patient has. There is a common belief that a patient always recovers from a first attack completely, that after the second he has palsy, and that he dies of the third. This, although not strictly true, expresses properly the increasing danger with each succeeding fit.

THE TREATMENT

Is naturally divided into that instituted to prevent an attack, and that proper when an attack has actually occurred.

Dr. Tanner, in his work on the Practice of Medicine, enumerates a number of useful precautions to be observed by the individual who has a predisposition to apoplexy. He should avoid strong bodily exertion, all the excitements of passion, any stimulation approaching to drunkenness, violent mental emotion, exposure to extremes of temperature, straining at stool, long-continued stooping, tight neckcloths, and warm baths. He ought to observe a moderately spare diet, free from alcoholic drinks; heavy meals being bad and dangerous. He should sleep with his head high, on a mattress rather than on a featherbed, in a cool, well-ventilated room, and for not more than eight hours. He ought to take daily exercise in the open air; and must pay great attention to his bowels. Washing the head in the morning with cold water is often useful. When giddiness, headache, throbbing in the head, and bleeding from the nose are present, much benefit will result from a dose of a purgative, as well as from blistering the nape of the neck. On the contrary, when the patient is pale and weak, small doses of iron, good, easily digested food, and plenty of milk will be needed.

We also refer the reader to our remarks on the prevention of apoplexy and palsy on page 267.

During an attack the patient should rarely or never

be bled. The former injudicious custom of bleeding in every stroke of apoplexy was productive of much harm. The feet should be placed in a hot mustard foot-bath, and mustard plasters should be applied to the wrists. The patient should be placed in a cool, well-ventilated room; his clothes, particularly those about the neck, loosened; his head raised; and cold applied to the head by means of pounded ice in a bladder or bag.

For a long time after recovery from an attack the patient should take great care of himself, and avoid all undue exertions of the mind or body. The diet, though nourishing, should be light and unstimulating. A pint or two of milk taken daily is of great service.

Palsy.

Palsy, or paralysis, is a loss of motion or sensibility, or both, in one or more parts of the body.

It may be due to an apoplectic stroke, to epilepsy, to St. Vitus' dance, to softening of the brain, to disease of the spine, or to the influence of certain poisons in the system. Whatever the cause, the affection is always a serious one. It demands and should receive the care of a competent physician to detect the cause and apply the remedy.

A case of palsy must not be necessarily regarded as a hopeless one. In many cases the cause is a comparatively slight one—such as poisoning by lead, for example—which can readily be removed, and recovery will soon follow. Even when the brain itself is

affected, a perfect cure can often be had at the hands of a skilful physician or surgeon.

In accordance with the rule we have laid down for ourselves in this work, of treating but slightly or not at all of those diseases which cannot be recognized and treated by non-medical persons, we shall abstain here from enumerating symptoms and methods of treatment in this disease. A knowledge of them would be of no practical benefit to any one. Here the advice of the intelligent physician is imperative. It should be had as early as possible, in order that the progress of the disease may be checked, if possible, before irreparable mischief is done.

St. Vitus' Dance.

This disease, which has been appropriately termed an "insanity of the muscles," consists in irregular and twitching motions of the muscles of the limbs and face, which motions are entirely without the control of the patient. He tries, but is unable to restrain the mortifying movements of the affected parts.

The *causes* of the disease are quite numerous. Whatever profoundly impresses the nervous system may produce an attack. Hence, a fright, or a blow or fall, by the shock it occasions, may develop the disease. Worms in the bowels are sometimes the cause. It occurs very frequently after an attack of rheumatism in children, hence the poison of rheumatism has been supposed to exert an influence in its causation.

The disease is most common in girls between the ages of six and fifteen, but boys of the same age sometimes suffer from it.

Although the affection is not contagious, it is contracted not unfrequently by nervous children from observing the movements of those affected by it. We may here apply, in a wider sense than they were, the words of Falstaff: "It is certain that either wise bearing, or ignorant courage, is caught, as men take diseases, one of another; therefore, let men take heed of their company."

The *treatment* of St. Vitus' dance lies mainly in the improvement of the general health rather than in any special medication. The *tonic* recommended in the

Standard Domestic Remedies should be given, a generous diet insisted on, and a change of scene secured if possible. A child will be more benefited by a sojourn at the seaside than by any medicine which can be given it. The cold shower-bath is a most valuable remedy, and should be employed early every morning. The patient ought to have plenty of milk, and exercise in the open air. A system of light gymnastics, such as we have recommended on a previous page, will be found of great service. Excitement of every kind must be guarded against.

CHAPTER XI.

ON FEVERS.

CONTENTS.

CHILLS AND FEVER. Peculiarities of this affection—Its different varieties—The cause—The treatment.

TYPHOID FEVER. The nature of the fever—The various names it bears—The causes—Is it contagious?—The symptoms—The treatment—Importance of good nursing—How to nurse a case of typhoid fever.

TYPHUS FEVER. Definition of the disease—The circumstances under which it appears—Is it contagious?—The symptoms—The duration—The treatment.

YELLOW FEVER. Its character—The causes—Is it contagious?—The symptoms—The treatment.

CHILLS AND FEVER.

THIS disease is aptly named. It begins with a chill, and ends with a fever and perspiration. It consists, therefore, of three distinct stages—the cold, the hot, and the sweating.

There is another peculiarity about this disease. It is intermittent—that is, there are a series of attacks, with pauses or intervals between, during which the patient is free. There is also a regularity in regard to the reappearance of the attacks. The patient has his chill, with business-like promptness, every day,

every other day, or on every third day. It is eminently a periodical affection.

There is only one cause for this disease, namely, malaria or miasm, that is, bad air—air impregnated with exhalations from the earth, in marshy districts, or where decaying vegetable matters are exposed to the sun.

In the first part of this book, we entered, at some length, into the prevention of this disease, noted the temporary precautions which should be observed by those exposed to the poison of malaria, and enumerated the specific and permanent preventives. We need, therefore, in this connection, only refer our reader back to page 250.

THE TREATMENT

Of chills and fever is a specific one. It is one of the few diseases for which we know a specific. This specific is Peruvian bark, or one of the alkaloids (quinine or cinchona) derived from it. Quinine is the remedy most used.

An excellent plan is to give two or three grains of quinine four or five times a day between the chills. It is best taken in powder mixed with some scraped apple, which will disguise its bitter taste. The use of the quinine should be continued for some weeks, in smaller doses, after the chills have ceased to reappear. Every spring and fall, for some years afterwards, a few weeks' course of quinine, two grains three times a day,

should be gone through with, to guard against a return of the disease.

We recommend, to those who find quinine disagreeable, the use of the antiperiodic mentioned on page 779. It will be found equally efficacious, and more pleasant.

Common salt has a reputation in this disease (see p. 703); so also has the American poplar (p. 726), the dogwood (p. 729), oak-bark (p. 730), the persimmon (p. 731), the willow (p. 735), and parsley (p. 742). None of these remedies has, however, the power over the disease possessed by Peruvian bark and the chemical preparations derived from it. We mention them in order that they may be resorted to when the latter cannot be had.

Typhoid Fever.

This is a fever characterized by great prostration of the strength. Peculiar rose-colored spots appear from the eighth to the twelfth day of the disease, on the skin, particularly of the belly. There are pains in the bowels and diarrhœa, which set in early in the affection and increase as the disease advances.

Typhoid fever is known in some parts of the United States as the autumnal or fall fever. It has also received the names of putrid fever, gastric fever, gastro-bilious fever, and night-soil fever.

The *causes* of typhoid fever are contagion, bad air, and the effluvia from decaying animal matters, from foul drains, water-closets, etc. The drinking of water contaminated by sewage is a cause not unfrequently active in badly regulated cities.

The disease is not powerfully contagious; still, there is no doubt that under favorable circumstances it is often communicated from one person to another.

It is especially apt to attack the young and those in early middle life.

For fuller statements in regard to the causes and *prevention* of typhoid fever, see p. 248.

In the United States army during the late war, the chief causes of typhoid fever were animal exhalations and privy gases. Dr. Bartholow states, in the United States Sanitary Commission's Memoirs of the War, that "the cases of fever occurred most numerously where the diarrhœal discharges were most abundant, and were most exposed to decomposition and dissemination

by the air and water supply. Diarrhœa was common. Badly constructed sinks within a few yards of the camp were the rule, and not unfrequently no sinks were used, but the environs of the camp were converted into a general latrine. Privy odor was soon developed, and the drinking water contaminated. When sufficient time had elapsed, typhoid fever declared itself."

THE SYMPTOMS

May show themselves suddenly by vomiting and purging, so as to give rise to the suspicion of poisoning. Ordinarily, however, for several days before the attack fairly begins, the patient is languid, complains of pain in the limbs, and is out of sorts. The fever is ushered in with chilliness or profuse diarrhœa. The diarrhœa increases, and pain in the bowels becomes troublesome. The hearing becomes dull, and the patient has ringing in the ears. The face has an anxious and besotted expression. Not unfrequently there is bleeding at the nose during the first week. The fever and thirst are severe. The belly enlarges, and is painful on pressure. Somewhere from the eighth to the twelfth day a characteristic eruption of rose-colored spots appears upon the skin, particularly of the belly. During the third week the bowels become more distended, the diarrhœa and thirst increase.

The average duration of the disease is about twenty-three days. In fatal cases, death usually occurs towards the end of the third week; in favorable cases, gradual recovery usually begins during the fourth week.

Recovery from this disease is very slow, and beset with dangers. The greatest care in the diet and mode of life is required to prevent a dangerous relapse. NO ONE IS FIT FOR HIS ORDINARY WORK FOR THREE OR FOUR MONTHS AFTER AN ATTACK OF SEVERE TYPHOID FEVER.

THE TREATMENT.

Sponging the skin with a cold or warm mixture of vinegar and water, is of service in reducing the fever and lowering the pulse. The headache, which is so troublesome a symptom in the early stages of the disease, is relieved by the free application to the head of ice-water, spirits and water, vinegar, or cologne-water, or of pounded ice in a bladder or bag. It is better at the outset of the affection to cut the hair close, in order to render the patient more comfortable during the illness.

Lime-water, mixed with an equal quantity of milk, is an excellent drink to restrain the excessive diarrhœa. It is not right to arrest the diarrhœa entirely by astringents.

Hygienic measures, and supporting treatment by tonics and nourishing food, constitute the principal means of managing a case of typhoid fever. An abundance of fresh air, perfect cleanliness, the keeping of the sick-room at a temperature not above 60°, and frequent changing of the posture of the body, are essential to good nursing in this disease. With-

out this intelligent care of the patient, little can be accomplished by medication.

Ice-water or lemonade, barley-water acidulated with orange-juice, and soda-water, are pleasant and safe drinks, provided too much be not taken at one draft, so as to distend the stomach.

The diet should be nourishing and administered often, but in small quantities at a time. No solid food should be allowed during the illness, nor for weeks after entire recovery has taken place. Death frequently results from an ignorance or disregard of the danger to the patient of allowing him other than a fluid diet. He should be supported on beef-tea, beef-essence, and the various animal soups and broths for which we have given receipts in the chapter on "Receipts for the Sick-table."

As to medicines, an excellent treatment is by quinine, two grains three times a day. The mineral acid treatment is a very popular one at present. Twenty drops of dilute nitro-muriatic acid should be given in water three or four times a day.

An approved method of treatment is the following: Give the patient fifteen drops of dilute muriatic acid, in a wineglassful of water, every two hours, and a wineglassful of beef-tea in the alternate hours, so that each hour, when awake, the acid or the tea will be taken.

Typhus Fever.

This disease, known also as jail fever, ship fever, and hospital fever, is caused by overcrowding and bad ventilation; it is, therefore, the accompaniment of poverty and of overfilled jails, ships, and hospitals.

It is very contagious, and, in this way, may be communicated to those who would never themselves have been exposed to the causes which generate it.

THE SYMPTOMS

Of typhus fever are great dryness and heat of the skin, constipation, a dull, heavy look, much prostration, and irritability and restlessness during the evening and night. There is severe headache during the first week, and often deafness. The wakefulness at night is a troublesome symptom, and the great bodily weakness one of the most remarkable symptoms. The strongest man in health, after a few days' illness with this disease, is unable to turn himself in bed. After the first week the patient becomes delirious, frequently wildly so.

Convalescence is very gradual. The improvement begins between the tenth and sixteenth days. When the disease terminates fatally, death occurs ordinarily between the twelfth and twentieth days.

Typhus fever is distinguished from typhoid fever by the peculiarity of the rash, which is called a mulberry rash from its appearance; in typhoid fever the eruption consists of rose-colored spots. In typhus fever,

the bowels are constipated; there is rarely diarrhœa, and never any hemorrhage from the bowels: in typhoid fever, diarrhœa is an early and constant symptom, and hemorrhage from the bowels occurs in about one case out of twenty-three.

The treatment of typhus fever is essentially the same as that of typhoid—(which see)—consisting in good nursing, and measures to support the strength.

Yellow Fever.

This fever is one which occurs only once during life. It is characterized by yellowness of the skin and of the whites of the eyes, and is confined within certain geographical limits, no case having ever been known to originate beyond 48° north latitude, nor at a temperature lower than 72°.

In the western hemisphere, the disease is chiefly confined to the seaport towns of the Atlantic coast south of Charleston, S. C., on the Gulf of Mexico, and in the West India Islands. There have been several severe epidemics of it in some of the more northern States. It made its appearance in Philadelphia in 1699 and 1740, and again in that city, New York, and some other northern cities in 1744, 1747, 1760, and 1762. A dreadful visitation of the yellow fever afflicted the city of Philadelphia in 1793. "Such was the magnitude of this awful calamity, as to excite, in the breasts of all classes of people, the keenest emotions of sympathy and commiseration. The city was abandoned by a large proportion of its inhabitants, and those who remained were not sufficient to administer comfort to the sick, and to bury the dead. It was not uncommon for persons to expire alone in a house, and without a human being to witness the awful scene. A negro, leading a horse and hearse, was to be seen in every street, and at almost every house. If a solitary passenger was met, his gloom and ghastly visage proclaimed the horrors of his soul, as if conscious that with every breath is mingled the sting of

death. No less than four thousand and forty-four persons fell victims to this destructive epidemic in that ill-fated city, between the first of August and ninth of October.

At various times other cities of the United States have been visited by epidemics, more or less severe, of this disease. A singular feature of yellow fever is that the negro race is nearly exempt from the liability to it, and when attacked the disease with them is very mild and attended with little danger.

Age does not affect the susceptibility to the disease. All periods of life, from early infancy to old age, are liable to it. There are more cases among men than women.

Yellow fever is essentially a disease of warm climates. A continuous temperature of over 72° for several weeks at least is necessary for its development.

Although the fact whether yellow fever is contagious has been questioned, the evidence in favor of its contagiousness is, in our opinion, conclusive. We warn our readers against the danger of a contrary opinion.

In localities in which the disease often prevails it may be frequently prevented by sanitary regulations, such as the removal of filth, the avoidance of overcrowding, attention to drainage, sewerage, etc. In localities in which the disease rarely shows itself it may be prevented by a rigorous quarantine.

THE SYMPTOMS

Of yellow fever are, the suddenness of the attack, often appearing in the middle of the night; the yellowness of the skin and of the whites of the eyes; the severe pain in the front of the head, the back, loins, and calves of the legs; the great feebleness of the mind and body; and the irritability of the stomach. After a while the matter vomited has the appearance of coffee-grounds, constituting what is called the *black-vomit.* There is apt to be bleeding from the bowels, nose, and gums.

The fever ordinarily lasts from three to seven days, although the patient may die in a few hours. If the patient passes the sixth day without black-vomit, the case is progressing favorably.

THE TREATMENT

Of yellow fever is difficult and unsatisfactory. The diet should be simple. Ice swallowed in small pieces relieves the irritability of the stomach.

The patient should go to bed at once, so soon as attacked—complete rest of body and mind is of primary importance. Cleanliness, plenty of pure air, and all the other sanitary resources which we have dwelt upon in the second part of this volume, in treating of the nursing of the sick, are of more value than any of the preparations of the apothecary—for no specific for the disease is known.

Foot-baths under the bedclothes, and sponging the body frequently with warm water, are of great advan-

tage. Medicines to induce perspiration, such as sweet spirits of nitre or spirits of mindererus, are also of service. But the care of the person and chamber of the patient, which a skilful nurse alone can give, is, we repeat, of the greatest moment. In New Orleans the Creole nurses manage with much success many cases of yellow fever without any medical aid.

CHAPTER XII.

SURGICAL DISEASES.

CONTENTS.

Erysipelas: Causes; Symptoms; And treatment—Boils—Styes—Carbuncles—Felons—In-growing toe-nails—Corns—Bunions—Warts—Tumors—The difference between malignant and non-malignant tumors—How to tell a cancer—Piles—Inflammation of the eyes—Toothache—Earache.

ERYSIPELAS.

THIS disease is known under various names. It is sometimes called the *rose;* in some places, *St. Anthony's fire;* in others, *wild-fire.* The term erysipelas, by which it is generally designated, is derived from two Greek words which mean to draw near, from its tendency to extend itself gradually over the neighboring parts.

The principal *symptoms* of this affection are fever and the deep red color of the affected part, which is also swollen and painful. The attack is ordinarily preceded by chilliness, muscular pains, nausea, and vomiting.

Every portion of the surface of the body is liable to this disease. But the skin of the face and head is the part much more frequently affected.

The *causes* of erysipelas are various and numerous. Whatever disorders the health may occasion an attack of erysipelas. With some persons, certain articles of food produce the disease. For instance, there are those who cannot eat shell-fish, others who cannot eat strawberries or nuts, without suffering from an erysipelatous attack. Suppression of the perspiration by sudden exposure to cold often gives rise to the disease. Loss of sleep, great excitement or anxiety, and hard study, are also capable of inducing it. The bad air in crowded hospital wards frequently originates a severe form of this malady among the patients, and sometimes the nurses exposed to it. The disease is in some years epidemic in certain communities.

Erysipelas is, in some of its forms, undoubtedly contagious. It is also, as is well known, inoculable; that is, the sponge used upon an erysipelatous patient may communicate the disease to an ulcer or wound in a healthy person. Hence the importance of great care in this regard.

There are two forms of erysipelas: one which follows a wound or surgical operation, the other which appears from some internal cause in a person who is not suffering from any hurt. The tendency to erysipelas which sometimes prevails in a city or hospital, renders for the time being the simplest surgical operations dangerous, because of the erysipelatous inflammation which may follow the operation, no matter how skilfully performed. During such periods, every intelligent surgeon performs as few operations as is possible.

The *treatment* should commence with a cathartic, a dose of the purgative recommended among the standard domestic remedies, or a bottle of the effervescing citrate of magnesia, answering an excellent purpose. Ten grains of Dover's powder, or a dose of *the febrifuge* we have recommended on page 777, should be taken at night. The whole surface of the body should be sponged frequently with warm water, and if the patient be strong enough, he should be placed daily in a warm bath.

One of the best remedies for erysipelas is the muriatic tincture of iron. It should be given in doses of fifteen or twenty drops, three or four times a day, in a wineglassful of sweetened water, drawn into the back of the mouth through a straw or glass tube, in order to protect the teeth from the action of the acid in the iron preparation.

As an application to the reddened skin, the dilute tincture of iodine is excellent. A mixture of equal parts of tincture of iodine and alcohol should be applied by means of a camel's-hair brush until the surface becomes of a brown or mahogany color. This application to the affected part is to be repeated two or three times a day, and should extend over a portion of the surrounding sound skin. The only objection to this treatment is that it is sometimes, *not always*, attended with pain. For this reason, it is better to apply the iodine lightly at first, in order to notice whether it increases the suffering.

The application of a solution of sugar of lead and opium is a very soothing and useful one. For the

manner of preparing and using this solution, see page 526.

The diet of the patient should be light but nutritious. Cool drinks may be freely allowed. The utmost cleanliness of the person must be enforced, the linen and bedclothes being changed daily. The sick-room should be well ventilated.

As the patient recovers, he should change his room, and sleep in another chamber. Gentle exercise in the open air is very beneficial during the period of convalescence.

BOILS.

A boil is a small, hard, and painful swelling, caused by inflammation of the skin and the tissue immediately under the skin. After a certain time the swelling becomes pointed, and bursts, giving exit to yellow matter mixed with blood, and to a hard mass of dead tissue which is called the core.

The pain at first is smarting or burning, but before breaking it becomes of a throbbing character. The skin is very red and tender. The boil reaches its height in from three to eight days. It may attack any part of the body, excepting perhaps the sole of the foot or the palm of the hand. Some people are rarely free for any length of time from these pests. They are very apt to appear after a fever, or a severe illness of any sort.

The *causes* of a boil often cannot be detected. It seems to come of its own accord. Usually, however,

it is associated with a bad condition of the general health, or is a consequence of a blow or injury received. Overwork, excesses of all descriptions, mental anxiety, insufficient food, and indeed whatever deteriorates the condition of the blood, renders a person liable to the invasion of boils.

The *treatment* is at once to poultice the part, or apply cloths wrung out in warm water. The application of a fig poultice is of service. It is the oldest poultice on record. It was applied to Hezekiah in the eighth century before Christ. Isaiah said: "Take a lump of figs. And they took and laid it on the boil, and he recovered."

The general health should be at once improved by tonics, recreation, and good food. There is no remedy for those boils which come without any appreciable cause like a trip into the country or to the seaside.

STYES.

A stye is a small boil of the size of a barleycorn, which appears near the edge of the eyelids, particularly near the inner corner of the eye.

Scrofulous and weak children are particularly prone to suffer from styes.

The *treatment* consists in the application of a slippery-elm poultice to bring the stye to a head, and the internal use of cod-liver oil and iron to improve the general health.

CARBUNCLES.

A carbuncle may be defined to be a very large and malignant boil. The swelling is very painful, and of a dull red color.

Prof. Gross says: "Elderly persons are most prone to carbuncle, and it is generally believed that such as are fat and indolent, or addicted to the pleasures of the table, are more frequently attacked than the lean and active. In my own practice, however, this has not been the case. On the contrary, the greatest number of instances has occurred in thin subjects, after the age of fifty, whose constitution had been broken down by long-continued intemperance, impoverished diet, deficient clothing, and mental anxiety. In London, carbuncle is said to be remarkably common among the lower orders, in consequence of the enormous quantities of ale and porter which they habitually consume. The disease is more frequent in winter than in summer, and in men than in women; occasionally it displays an epidemic tendency. Carbuncle is one of the symptoms of plague. The extent of the inflammation varies from that of a dollar up to that of a large saucer, its average being about that of the palm of a small adult hand."

The most common situation for a carbuncle is the nape of the neck, or on the back between the shoulders.

The Treatment.—Large flaxseed poultices (see p. 519) should be applied early, for they afford more relief than any other application. The surface may be

sprinkled with laudanum. The general health should be improved by a generous, easily-digested diet, and by the use of tonics. The treatment of the carbuncle itself should be intrusted to a surgeon, for the early use of the knife greatly relieves suffering, and expedites recovery.

FELONS.

This disease, known also as whitlow, is an inflammation seated near the nail of the thumb or a finger.

The pain is extremely severe, of a sharp, shooting or throbbing character. The part is very tender to the touch, and of a dusky red color. Matter forms in the course of a few days, and appears as little yellow blisters around the side and back of the nail.

The severity of the pain leads to a fever, restlessness, sleeplessness at night, loss of appetite, back and headache, and sometimes even delirium.

The *treatment* consists in the application of a poultice wet with laudanum, and the keeping of the hand in a sling, for, if the hand be allowed to hang down, the pain and inflammation are aggravated. But the chief reliance lies in having a surgeon open the part freely and early with the knife. This treatment, although terrifying to the timid patient, is really not painful, and it affords prompt relief to the severity of the suffering. Besides, the surrounding structure is thus saved from destruction, for if the disease be not promptly treated in this manner, there is danger of the loss of the end of the finger.

IN-GROWING TOE-NAILS.

The edges of the nails of the toes, especially that of the big toe, often grow into the skin. Great suffering is thus caused.

Surgeons advise that the whole of the offending nail, or one-half of it, shall be plucked out by the roots with a pair of tweezers. This is a very effectual remedy, but one from which the patient is apt to shrink. A firm pad placed against the flesh so as to push it away from the inverted nail, and confined in this position by means of a bandage, is often a very effectual procedure. In connection with this bandage or alone, the *sesquichloride of iron* may be applied, which destroys both the vitality and sensitiveness of the overhanging flesh without occasioning any pain.

This trouble may be prevented by avoiding the use of a narrow, tight shoe, and by cutting the nails in such a manner that the thickened and hardened skin may not rise above the level of the nail, and thus bury the latter.

CORNS.

There are few persons who escape altogether trouble with corns. In regard to their treatment, we will quote the directions we have given in another work: So common are corns, that in all our large cities there are individuals who devote themselves to their extraction, and make a living by it. These gentlemen are not always too implicitly to be relied upon. Some,

indeed, are skilful and reputable specialists, but the majority are ignorant and tricky, thinking of nothing but how to "make business," that immortal principle which Charles Dickens says is the only stable and entirely certain one in English law. We had recently in our hands a small book published by one of them, in which he urgently dissuades persons from cutting their own corns, but always to come to the celebrated chiropodist, Dr. ——, to have it done ($5.00, if you please).

This is charlatanism. All persons can not only cut, but cure their corns, if they will take the trouble. They can even learn to extract them on the feet of others, but not readily on their own. The method is simple, the operation painless, and we shall describe it.

The only instruments needed are a pair of small steel forceps, and two or three blunt-pointed steel or silver instruments, technically called quadrilles. The corn is first softened by immersion in warm water, or by a drop of oil or glycerine. The foot is then held in a good light, and the centre of the corn loosened by passing the point of the quadrille gently around the circumference of the callous portion. This is seized by the forceps, and held to one side while the instruments loosen the other side. So the operation is continued, very gently and leisurely, until the whole callus is loosened and the corn picked out by the forceps. Under ordinary circumstances not the least pain need be given and not a drop of blood shed. This is the art and the mystery of corn-doctoring.

It requires some skill, some command over the fingers and the nerves; it cannot be performed on one's self. This is disappointing. But we have not yet divulged all the "tricks of the trade." Here are some methods of curing one's own proper and peculiar corns without assistance from any one.

Take several small pieces of ordinary sticking-plaster. Cut in them holes the size of the corn. Apply one over the other so as to surround the corn, but leave it exposed. Then in the opening drop a saturated solution of caustic soda, and cover with a thin piece of plaster. Renew this every other day for eight or ten days, and the corn will be gone.

Or cut the corn carefully with a knife not too sharp, taking care that it is not cut to the quick or to blood. Then touch it lightly with nitrate of silver in stick. In two or three days a dark, callous crust will cover the surface. Remove this with the knife, and apply a second time the silver nitrate. Do this for a fortnight, and if it is judiciously and regularly done, and the part protected from pressure, it will cure any corn.

Very painful corns can be helped by being covered with the following plaster, though we have little faith in its curative powers:—

Take of—
Resin plaster, one ounce.
Melt and stir in.
Muriate of ammonia, two drachms.
Powdered opium, one drachm.

The strong tincture of iodine applied daily is often an efficient remedy, and another is to rub them morn-

ing and night with a piece of pumice-stone. If well softened beforehand, this latter method, though tedious, is satisfactory and painless. It is particularly suited to soft corns between the toes.

A word concerning the cutting of corns. There is a right and a wrong way to do even this. Bear in mind that the part of the growth which is thick and painful is not near the edges, but in the centre. Therefore, they should be pared into a concave or funnel shape; not flat across, but deeper in the middle than at the circumference.

BUNIONS.

A bunion may be described as a very large corn situated on the outer side of the joint of the great toe. The wearing of short, high-heeled, and narrow-soled boots, which throw the whole weight of the body on the front part of the foot, is the chief cause of bunions.

On the first indications of the coming of a bunion, a small, flat, and hollow ring of India-rubber should be procured, and worn so as to ward off pressure from the shoe. The pain, when the bunion is fairly formed, may be relieved by poulticing and painting with the tincture of iodine, or touching with the nitrate of silver. If the bunion should become actively inflamed, it is better to call in the aid of a surgeon, for the usefulness of the joint may be affected if the trouble be neglected.

WARTS.

These annoying excrescences on the hands and face often appear upon several members of the same family, and seem, in some instances, to be hereditary. Their cause is not known.

The Treatment.—The application of a mixture of equal parts of chromic acid and water, by means of a glass brush, is an effectual and not a painful remedy. Under its influence the part turns black, and in the course of six or eight days the wart drops off, leaving a healthy sore spot, which soon heals. The use of the tincture of iodine, or the touching of the wart with nitrate of silver, will also cause it to disappear. So also will a current of electricity passed through the wart daily.

TUMORS.

Surgeons divide all tumors into malignant and benign. A malignant tumor is one which is dangerous, which may destroy the part or the life of the patient. A benign or non-malignant tumor is one which is not attended with any danger; it is simply an inconvenience by its location, size, or weight.

It is not our design here to enter at length into a description of the different kinds of tumors, for there are very many of them. It would be impossible for us to give to our non-medical reader such information as would enable him to distinguish one from the other, and institute the proper treatment. We would advise him to seek for himself or a member of his family,

when suffering from a tumor of any sort, intelligent medical advice early in the disease.

We can, however, we think, give him some information which in many cases will enable him to tell positively that the tumor is not a cancer. This information we believe useful, as there are a multitude of charlatans, "cancer doctors"—designing men who trade upon the fears of the community. They call every case of a tumor, which comes to them, a cancer, and make money at the expense of the mental tranquillity and the bodily sufferings of their victims, induced by their alarming statements and their caustic applications.

HOW TO TELL A CANCER.

The tumor is very hard; it feels like marble under the skin. It is not a disease of early or middle life; it rarely appears before the age of forty-five. It grows slowly, and never becomes very large—at the outside, not beyond the size of a double fist. The pain is peculiar; it is of a sharp, darting character, like the passage of a needle through the part. The disease rarely lasts longer than two years.

A tumor which falsifies this description is not a cancer, whatever else it may be. The travelling empiric who tries to convince the patient that it is so, is guilty of deceit, and worthy of no confidence.

PILES.

Piles, or hæmorrhoids, as they are called by physicians, are of two varieties—the external and internal; that is, those within, and those outside of the bowel.

External piles are readily and safely treated by the surgeon. Their removal is attended with little suffering and no danger. If the patient be not willing to submit to an operation, there are various simple measures which will afford relief to the pain. Sponging the parts with cold water night and morning, or with water to which alum or sugar of lead has been added, is useful. Much benefit is also derived from the employment of the ointment of nutgalls, made with the addition of twenty grains of powdered opium to the ounce of the ointment.

Internal piles are more serious, and difficult of cure. The loss of blood which they sometimes occasion is not unfrequently very exhaustive to the patient. The surgeon can effect a radical cure by their removal, but the operation should only be performed by skilful hands, as it is not unattended with danger.

An excellent palliative in cases of internal piles is an injection of a pint of cold water every morning. Under the use of this simple remedy, with a few grains of rhubarb daily, long-standing cases have not unfrequently been found to yield completely. An injection of alum and water, of the strength of one or two teaspoonsful of alum to the pint of water, may be used with advantage in bleeding and painful piles. Sulphate of iron, dissolved in water in the proportion

of two grains to the ounce of water, is also of great service, employed once a day as an injection, to check the bleeding.

When there is much irritation and pain, great relief is often obtained from the hip-bath, from sitting over the steam of hot water for fifteen or twenty minutes, and immediately applying a warm bread-and-milk poultice; these measures should be repeated five or six times a day.

INFLAMMATION OF THE EYES.

In consequence of exposure to cold, the irritation of dust, too bright a light, or too constant use, the lining membrane covering the eye and lining the lids sometimes becomes red and inflamed. The eye feels as if there were some fine sand in it. There is a watery discharge, and the patient, perhaps, complains that in the morning the lids are glued together by a dried secretion.

The treatment of this condition is a simple one. The eyes should be bathed every two or three hours, or oftener if the attack is a severe one, with a lotion of alum (four grains to the ounce of water), or of sulphate of zinc and alum mixed (three grains of alum and one grain of sulphate of zinc to the ounce of water), taking care that with each application a little is allowed to flow into the eyes. In the intervals between the times for using the lotion the eyes may be bathed with cold water, to keep them free from the discharge. To prevent the gumming together of the

eyelids during sleep, a little cold cream, or of lard free from salt, may be smeared along their borders every night.

TOOTHACHE.

For this troublesome affection relief should be sought at the hands of the dentist. A tooth that aches is more or less decayed, and the progress of this decay should be arrested, as soon as possible, by plugging.

To relieve at the time the pain of the aching tooth, there are many domestic remedies employed, some of which are hurtful. The introduction of a piece of cotton soaked in chloroform into the hollow of the tooth will often afford instant relief. The following mixture is very highly recommended:—

Take of—
Tannin, twenty grains.
Gum mastic, ten grains.
Ether, one-half fluidounce. Mix.

Wet a piece of cotton with this, and introduce it into the aching tooth.

Toothache is sometimes speedily cured by rubbing the gums with a few drops of tincture of aconite, or moistening a piece of cotton with it and putting it into the tooth. If the aconite afford any relief, it will do so at once, so that if relief be not speedily obtained it is useless to persevere in its use.

The use of liquor gutta-percha (solution of gutta-percha in chloroform) on cotton is often of service.

A mixture of equal parts of tincture of aconite, compound tincture of benzoin, and chloroform, applied by means of a pledget of cotton, is an excellent remedy.

EARACHE.

Relief is often afforded by warming some laudanum (by standing the bottle in warm water), filling the affected ear with it, and retaining it by means of a plug of cotton. There is no danger in so doing, for the laudanum, employed in this way, cannot do any hurt. When there is pain in the side of the face, or in the ear, in consequence of a decayed tooth, the same procedure will often afford relief and secure a good night's sleep.

A mixture of equal parts of laudanum and sweet oil, introduced into the ear by means of a piece of cotton soaked in it, will also often afford speedy relief.

The cause of the trouble in obstinate earache should be diligently sought for, in order that it may be removed. A decayed tooth will sometimes be found to be the unsuspected influence at work. In other instances the pain is due to neuralgia, which should be treated in the manner mentioned in our article on that disease.

CHAPTER XIII.

ACCIDENTS AND INJURIES.

CONTENTS.

Sunstroke: its causes, treatment, and prevention—Injuries from cold: frost-bites; chilblains—Treatment of the apparently drowned: first measures for restoration; to restore the breathing; after breathing has been restored; appearances accompanying death; cautions—Poisons and their antidotes: prussic acid; laurel-water; muriatic acid; nitric acid; sulphuric acid; oxalic acid; ammonia; mussels, crabs and crawfish; bites of serpents, rattlesnakes, copperheads, vipers; tartar emetic; arsenic; belladonna; thorn-apple; tobacco; aconite; copper; poisonous gases; lead; corrosive sublimate; mushrooms; nux vomica; strychnia; laudanum; henbane; savine; nitrate of silver; tin; sulphate of zinc—Burns and scalds—Railroad and other injuries, and how to stop bleeding—Bleeding of the nose, at the lungs—Foreign bodies in the ear, the eye, the nose, the throat—Bruises—Sprains—Fainting.

SUNSTROKE.

THIS is an affection of the nervous system induced by exposure to heat. It is associated with dizziness and sometimes with headache, or the gradual coming on of listlessness and torpidity, with a desire to lie down. These symptoms may culminate in more or less sudden and complete insensibility, without the power of sense or motion, the breathing being rapid and more and more noisy as death ap-

proaches. Jerking and twitching of the limbs usher in a complete state of unconsciousness, in which the patient gradually dies. The approach of death is shown by the failure of the heart's action, the fluttering of the pulse, the irregularity of the breathing. The patient may die within from five minutes to a few hours after the attack. In cases which recover, there are very apt to be troublesome consequences, such as forms of palsy more or less complete, depression of spirits, loss of memory, and perhaps some form of insanity. Often years elapse before the patient fully recovers his mental and physical health.

The *cause* of sunstroke is not merely exposure to the direct rays of the sun as many suppose. A heated atmosphere in the shade or in a room may cause an attack in one predisposed to it. Whatever lowers the tone of the nervous system lays a person on exposure open to this disease, hence excessive fatigue, bad ventilation, and particularly intemperate habits, lead to an attack in warm weather. The exposure of the back of the neck to the direct influence of the slanting rays of the sun is especially dangerous.

THE TREATMENT

Of sunstroke consists in removing the patient at once to the nearest cool and shady place; laying him down with his head a little raised; dashing cold water over the head, neck, and chest, after removing the clothing, and pouring a stream of cold water over the head and chest from a bucket held some feet above the patient.

Mustard poultices may be applied to the calves of the legs and soles of the feet. When the patient can swallow, he should partake freely of good tea, which is an excellent remedy, stimulating the nervous system and acting upon the skin.

Rubbing the whole body with pieces of ice as large as can be conveniently handled, and keeping pieces in the armpits, until there is returning consciousness, which may not be for several hours, and then giving iced wine and water, is a method of treatment recommended by experienced physicians in this disease.

THE PREVENTION OF SUNSTROKE.

The heat of the sun is particularly apt to affect soldiers on the march. Therefore, when a long march is to be undertaken during hot weather, the weak and sickly should be left behind. The dress should be suitable for the early morning hours before sunrise, as well as for the scorching heat which follows. A flannel shirt is a safeguard against sudden chills; a flannel belt is an advantage, except in the hottest weather. The shirt-collar ought to be open. A light knapsack should be allowed, which does not require the use of cross-belts over the chest. The troops should march "easy" and loosely clad; at a pace not exceeding three and a half miles an hour; with halts when the men are exhausted; and with a longer halt half-way, so that each man may have a biscuit and a cup of coffee. There should be an ample supply of water, but no spirits, allowed.

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TREATMENT OF DROWNING.

The *Havelock*, a linen cape attached to the hat, and falling over the neck so as to protect the upper part of the spinal column, is an excellent preventive against sunstroke, and should be worn by all those whose occupations force them to be exposed to the direct rays of the sun in hot weather. A wetted towel or sponge placed over the head under the cap is also useful.

Injuries from Cold.

Dr. Hope gives the following advice in regard to the treatment of people being frozen and of frost-bites:—

Whether the whole body or only a part is affected, the principle of the treatment is the same.

Avoid a sudden change. If a person be found quite benumbed with cold, if you take him direct to a fire you may perhaps destroy life; a barn, a shed, or a room, which feels very cold to you, is warm enough at first. Remove the clothes if wet, and rub the body dry; put him into blankets, and give a little warm wine and water, or weak spirit and water, or tea; after a while remove him to a warmer room, but still not near a fire, and so gradually increase the warmth.

If you should ever be so situated in intensely cold weather as not to be able to reach a place of shelter, and find your strength failing, look out for a snow-drift on the side of a hill away from the winds; or if on a plain, try to find a hollow filled up with snow; scrape a hole large enough for your body and creep into it, then you are comparatively safe: the snow will shelter you from the wind and keep you warm.

Human beings and sheep have lain for days in this way, and been saved. But never forget the first warning of danger. If you feel a desire to sleep, and give way to it in the open country, it will be the sleep of death; you must keep in motion, however painful, or perish.

But there is another effect of cold, which is generally caused by standing or walking against a very cold wind, which is called being *nipped*. I have seen a person suddenly seized with great pain in the bowels, drawn together with cramp, the hands so swollen as to require the gloves to be cut off, and with intense headache. The same treatment answers: gradual warmth, very small quantities of warm stimulants, and, after a while, hot flannel to the painful parts.

FROST-BITES

Attack the extremities and projecting parts of the body, hands, feet, nose, ears. They are frequently so rapid and free from pain, that a person is not aware of anything being wrong. In Canada, when meeting a friend in the street, the caution is often both given and taken, "Mind your nose, sir, it looks whitish." The blood, you know, when warm, is fluid, but when it is cold, forms a solid clot; and you also know that when water or other liquid freezes, it expands, and so breaks water bottles and jugs, and it also becomes lighter. Now, precisely the same thing takes place in frost-bites; the blood in the part gets cold and runs slowly, then stops, all the little bloodvessels are

choked and swollen, you apply heat and burst them, causing dreadful suffering and troublesome wounds; or, if you do nothing, the circulation is quite stopped, and the part dies or mortifies.

TREATMENT.

Keep the person away from all heat; if you can, get clean snow and rub the parts constantly with it; or, if you cannot find snow, get the coldest water. Let the patient himself rub if possible, for the exertion will keep him sufficiently warm. You must continue this rubbing for hours in severe cases, till you get the parts quite soft, and something near the natural color. You must not allow any complaints or feeling of compassion to stop your rubbing, or to cause you to bring him into a warm room. Put on extra clothing, or let him have a run for a minute, but do not come near a fire. After you have done this, anoint well with sweet oil or lard, or lime-water and oil, and wrap up well with flannel.

If you should have any sores, dress them the same as burns. The following case on board a steamer happily caused more amusement than suffering. The men were busy in the very dirty employment of removing ashes. One of the engineers, being off duty, had dressed himself in his shore clothes, ready for a walk. After standing some time talking, one of the men noticed the white patch on his cheek, and instantly gathering a handful of snow, commenced rubbing vigorously. In his eagerness to benefit his

friend, he had forgotten the state of his hands, till the snow began to melt, which gave an extraordinary mottled black and white look to the engineer's face, and little ink-like streams trickled down his best clothes.

CHILBLAINS

Are in truth the same in every way as frost-bites, but in a milder form. They are more troublesome than dangerous, though in persons of weak circulation, or if neglected, they cause sores which last through the winter.

Prevention is better than cure. The only way to prevent them is to wear warm clothing on the hands and feet, keep up the circulation by exercise, and, above all things, not to bring them suddenly from cold to great heat. This is the whole secret of prevention. When they are formed, but not broken, rub well two or three times a day with equal parts of turpentine and laudanum, or equal parts of camphorated spirit and soap liniment, or sweet oil and spirits of turpentine, or with an ointment made of a teaspoonful of dry mustard and an ounce of lard. Any of these are good; but if the skin be broken, do not use them, but dress them just like a sore after a burn, or with the old-fashioned but excellent application of chalk and tallow; but it is not safe to use the grease of candles, as chemicals are so much used in making them, but take a little mutton tallow, melt it, and while warm mix it with whiting till it is of a proper thickness for

use. Either of these will give almost immediate relief.

Treatment of the Apparently Drowned.

The following instructions for the revival of persons apparently drowned are, in the main, those compiled by the British Royal National Life Boat Institution. These rules apply in all cases and in every country.

FIRST MEANS OF RESTORATION.

Send immediately for medical assistance, blankets, and dry clothing, but proceed to treat the patient instantly on the spot, in the open air, with the face downward, whether on shore or afloat, exposing the face, neck, and chest to the wind, except in severe weather, and removing all tight clothing from the neck and chest, especially the braces. The points to be aimed at are—first, and immediately, the restoration of breathing; and secondly, after breathing is restored, the promotion of warmth and circulation. The efforts to restore breathing must be commenced immediately and energetically, and persevered in for one or two hours, or until a medical man has pronounced that life is extinct. Efforts to promote warmth and circulation, beyond removing the wet clothes and drying the skin, must not be made until the first appearance of natural breathing. For if circulation of the blood be induced before breathing has recommenced, the restoration to life will be endangered.

TO RESTORE BREATHING.

Place the patient on the floor or ground, with the face downward, and one of the arms under the forehead, in which position all fluids will more readily escape by the mouth, and the tongue itself will fall forward, leaving the entrance into the windpipe free. Assist this operation by wiping and cleansing the mouth. If satisfactory breathing commences, use the treatment prescribed below to promote warmth.

If there be only slight breathing, or no breathing, or if the breathing fail, then, to excite breathing, turn the patient well and instantly on the side, supporting the head, and excite the nostrils with snuff, hartshorn, and smelling salts, or tickle the throat with a feather, if they are at hand. Rub the chest and face warm, and dash cold water, or cold and hot water alternately, on them.

If there be no success, lose not a moment, but instantly—to imitate breathing—replace the patient on the face, raising and supporting the chest well on a folded coat or other article of dress. Turn the body very gently on the side and a little beyond, and then briskly on the face back again, repeating these measures cautiously, efficiently, and perseveringly about fifteen times in the minute, or once every four or five seconds, occasionally varying the side. On each occasion that the body is replaced on the face, make uniform but efficient pressure, with brisk movement on the back, between and below the shoulder-

blade or bones on each side, removing the pressure immediately before turning the body on the side.

During the whole operation, let one person attend solely to the movements of the head and the arm placed under it. While the above preparations are being proceeded with, dry the hands and feet, and as soon as dry clothing or blankets can be procured, strip the body and cover or gradually reclothe it, but taking care not to interfere with the efforts to restore breathing. Should these efforts not prove successful in the course of from two to five minutes, proceed to imitate breathing as follows: Place the patient on the back on a flat surface, inclined a little upward from the feet; raise and support the head and shoulders on a small firm cushion or folded article of dress, placed under the shoulder-blades. Draw forward the patient's tongue, and keep it projecting beyond the lips; an elastic band over the tongue and under the chin will answer this purpose, or a piece of string or tape may be tied round them, or by raising the lower jaw the teeth may be made to retain the tongue in that position. Remove all tight clothing from about the neck and chest, especially the braces.

In order to imitate the movement of breathing, take your place at the patient's head, grasp the arms just above the elbows, and draw the arms gently and steadily upward above the head, and keep them stretched upwards for two seconds. By this means air is drawn into the lungs. Then turn down the patient's arms, and press them gently and firmly for two seconds against the sides of the chest. By this

means air is pressed out of the lungs. Repeat the measures alternately, deliberately, and perseveringly about fifteen times in a minute, until a spontaneous effort to respire is perceived, immediately upon which cease to imitate the movements of breathing, and proceed to induce circulation and warmth.

AFTER BREATHING HAS BEEN RESTORED.

Commence rubbing the limbs upward, with firm, grasping pressure and energy, using handkerchiefs, flannels, etc.; by this measure the blood is propelled along the veins toward the heart. The friction must be continued under the blanket or over the dry clothing. Promote the warmth of the body by the application of hot flannels, bottles or bladders of hot water, heated bricks, etc., to the pit of the stomach, the armpits, between the thighs, and to the soles of the feet. If the patient has been carried to a house after respiration has been restored, be careful to let the air play freely about the room. On the restoration of life, a teaspoonful of warm water should be given; and then, if the power of swallowing has returned, small quantities of wine, warm brandy and water, or coffee should be administered. The patient should be kept in bed, and a disposition to sleep encouraged.

APPEARANCES ACCOMPANYING DEATH.

Breathing and the heart's action cease entirely; the eyelids are generally half closed, the pupils dilated,

the jaws clenched, the fingers semi-contracted, the tongue approaches to the under edges of the lips, and these, as well as the nostrils, are covered with a frothy mucus. Coldness and pallor of surface increase.

CAUTIONS.

Prevent unnecessary crowding of persons around the body, especially if in an apartment or confined space.

Avoid rough usage, and do not allow the body to remain on the back unless the tongue is secured.

Under no circumstances hold the body up by the feet, or roll it with a barrel.

On no account place the body in a warm bath, unless under medical direction, and even then it should only be employed as a momentary excitant. Avoid the immediate removal of the patient, as it involves a *dangerous loss of time.* Also the use of the bellows or any forcing instrument.

Poisons and their Antidotes.

The appearance *suddenly* in a healthy person, soon after some substance has been swallowed, of severe symptoms of illness, may justly excite the suspicion that he has been poisoned.

The first thing to be done under such circumstances is as soon as possible to get rid of the poison by means of an emetic. Free vomiting may readily be induced by mixing in a tumbler of warm water a tea-

spoonful each of salt and mustard, and getting the patient to swallow it all, following it up, if necessary, with another tumblerful.

When the symptoms resemble those of poisoning by copper or tin, which will be found described below, the kitchen utensils ought to be carefully examined. Much anxiety may be saved by a resort to this simple precaution.

POISONS.	SYMPTOMS.	ANTIDOTES.
Acid, Prussic. Laurel-water. Cyanide of Potassium.	In large doses immediate death; in smaller, Extreme nervous prostration and paralysis gradually terminating in death. Odor of the poison is very perceptible on breath, and from all secretions.	Chloroform exhibited in teaspoonful doses diluted, and repeated every few minutes until symptoms subside and patient sleeps. Inhalation of steam containing the solution of ammonia, cold douche, friction to the spine. Artificial respiration (described under the head of drowning). *Chlorine-water* in strength two drachms to one ounce.
Acid, Muriatic. " Nitric. " Sulphuric.	In large doses immediate death; a peculiar shrivelled appearance of lining membrane of mouth and throat; intense burning in throat, gullet, and stomach.	Repeated and copious drafts of *water* to dilute the acid. *Chalk* or *calcined magnesia* in milk. Strong solution of soap. Solution of soda is by many preferred. It should be recollected that the mineral acids are very rapid in their caustic action upon the animal tissues, and that even if antidotes are instantly and successfully employed, a certain mischief is always inflicted; therefore in after-treatment avoid distending the stomach with liquids.

POISONS.	SYMPTOMS.	ANTIDOTES.
ACID, Oxalic.	Intense burning pain of mouth, and throat, and stomach, vomiting blood which is highly acid, violent purging, collapse, stupor, death. Note. Frequently taken in mistake for Epsom salts, to which in shops it often bears a strong resemblance.	From the rapidity and certainty with which it destroys life, no time is to be lost in attempting its expulsion by emetics. (Mustard and salt in water.) Employ immediately *chalk* or carbonate of magnesia in substance or solution. Put two tablespoonsful of the magnesia in a pint of water, and give a wineglassful every two or three minutes. While this is getting ready, knock, if necessary, a piece of plaster off the wall, pound it well, and give it in milk or water; or, give a tablespoonful of soft soap, or bits of common soap in water.
ALKALIES. Ammonia. Caustic Potash.	Excoriation of mouth and throat, burning in throat, chest, stomach, and intestines; colic, purging, and vomiting of bloody matter.	Vinegar, lemon-juice, and citric acid, with large quantities of water. Give freely of sweet oil. Mucilaginous and demulcent drinks.
ANIMAL. Conger. Mussels. Crabs. Crawfish.	Those of cholera, followed by paralysis of lower extremities. Nausea, immoderate thirst, irritating eruption of skin, low pulse, coldness of extremities, rarely death.	Evacuate as rapidly as possible the contents of the stomach and bowels. Sour drinks; chloroform internally in teaspoonful doses. Pure Cayenne pepper is thought to be a specific.
ANIMAL. Bites of Serpents. Rattlesnakes. Copperheads. Vipers.	Great pain in the bitten part, increased on pressure, swelling at first pale, then red, livid, gangrenous, and excessively hard. Vomiting, convulsions, small pulse, increased respiration, cold sweats, delirium, death.	Bibron's antidote, a spoonful every hour. Tie a string tightly above the wounded part, rub on well a piece of lunar caustic, or burn with a red-hot iron. Apply cupping-glass or mouth. Brandy and whiskey in large quantities, with other active stimulants. Bisulphite of soda in large doses has been highly recommended.

POISONS.	SYMPTOMS.	ANTIDOTES.
ANTIMONY, Chloride of.	Difficulty in swallowing, vomiting, pain in throat, dilated pupils, stupor, violent griping, collapse, stupor, death.	As an emetic, copious emollient and demulcent drinks, containing excess of sugar, followed by antidotes for other preparations of antimony. See below.
ANTIMONY, Salts of. Kermes Mineral. Sulphuret. Tartar Emetic.	Nausea, violent vomiting and purging, colic, burning pain in pit of stomach, cramps of lower extremities, inability to swallow, *severe lung* symptoms distress the patient, delirium, convulsions.	Large quantities of infusion or tincture of cinchona, or, if more readily procured, the powdered bark. The infusion or powder of galls. Give plenty of strong tea. Support the strength of the patient.
ARSENIC and its preparations.	May appear in a few minutes or not for several hours. Faintness, nausea, intense burning pain in stomach and throat, vomiting of a turbid brown fluid, intense thirst, purging, cold sweats, convulsions, death.	*Hydrated peroxide of iron*, recently prepared and in large doses, procured by the addition of an excess of water of ammonia to muriated tincture of iron, which yields the peroxide as a dense precipitate, and should be given in tablespoonful doses every five minutes until the symptoms are relieved. While the above is in preparation, emetics should be freely exhibited, and the stomach emptied and carefully washed with the pump. Raw eggs beaten up in milk are useful. A large dose of castor oil may be given to carry off the poison in the bowels. Lime-water, and flour and water, are beneficial.
BELLADONNA. THORN-APPLE.	Dryness of mouth and throat, great thirst, difficult swallowing, nausea, loss of vision, vertigo, delirium, death. Vertigo, headache, perversion of vision, slight delirium, sense of suffocation, disposition to sleep, bowels relaxed, and all secretions augmented.	The most prompt emetics and use of the stomach-pump, large drafts of tincture or infusion of cinchona or galls. Tannin in large doses. Electro-magnetism. Opium has been used with much success. Active stimulation, Cayenne pepper, ammonia, brandy, cold douche, and chloroform.
TOBACCO.	Vertigo, stupor, fainting, nausea, vomiting, sudden nervous debility, cold sweat, tremors, and at times fatal prostration.	

POISONS.	SYMPTOMS.	ANTIDOTES.
ACONITE.	Burning and numbness of the mouth, throat, and stomach, violent vomiting, but neither coma nor convulsions.	As above. Immediate and free administration of animal charcoal mixed with water, and followed by brisk emetic.
COPPER, Salts of. Verdigris.	Dryness of mouth and throat, nausea, ptyalism, coppery eructations, vomiting, dreadful colic, excessive thirst, etc.	Large doses of simple syrups as warm as can be swallowed until the stomach rejects the amount it contains. The whites of eggs, and large quantities of milk, afterwards strong tea, but *do not give vinegar.* Hydrated peroxide of iron.
GAS, Carbonic Acid. " Chlorine. " Cyanogen. " Hydrosulphuric Acid, and other poisonous gases.	Great drowsiness, difficult respiration, features swollen, face blue as in strangulation.	Artificial breathing, as described in speaking of the resuscitation of the drowned, cold douche, frictions with stimulating substances to the surface of the body. Inhalations of steam containing preparations of ammonia. Cupping from nape of neck. Internal use of chloroform.
HENBANE (see Opium).		
LEAD and its soluble salts.	Inflammation of the throat, stomach, and intestines, paleness, constipation, drawing in of belly, loss of voice, dilated pupil, cold sweats, locked jaw, paralysis, violent convulsions, death.	Put five tablespoonsful of Epsom salts in a large tumbler of water, and give a wineglassful every ten minutes till it operates freely. White of eggs and milk in large quantities. Chloroform internally as before, until symptoms are relieved.
MERCURY. Corrosive Sublimate.	Styptic, metallic acid, taste, constriction and burning of throat, salivation, great anxiety, tearing pains in stomach and intestines, vomit of bilious and after some time bloody matter, diarrhœa, small, quick, hard pulse, faintings, cramps, convulsions, coma, death.	The whites of eggs well mixed with water in large quantities, and continued until the vomit becomes transparent. A mixture of soap and wheat flour in water. The warm bath.

POISONS.	SYMPTOMS.	ANTIDOTES.
MUSHROOMS.	Nausea, vomiting, purging, colic, cramps of lower extremities, excessive thirst, convulsions, coma, death, or aggravated cholera morbus.	Brisk vomiting to be produced if the irritating substance has not been freely rejected, and then a purgative given. Chloroform internally as before.
NUX VOMICA. Strychnia.	Twitchings, rigidity of extremities, alternating with trembling, difficult respiration, excruciating pain in the stomach, suffocation, and death.	Evacuate stomach by pump, give chloroform internally in teaspoonful doses, frequently repeated, until symptoms are relieved. Tannin in excess 20 or 25 times that of the poison taken.
OPIUM and its preparations, laudanum, etc. Henbane.	Giddiness, stupor not always preceded by excitement, slow breathing, closed eyes, pupils contracted, features ghastly, pulse feeble and imperceptible, delirium, cold sweat, relaxed muscles.	Instant removal of poison by active emetics and stomach-pump, cold douche. Belladonna freely exhibited, of the tincture a teaspoonful, or of the extract two grains, every twenty minutes until free vomiting is established. Artificial breathing, strong coffee, active stimulants, decoction of galls, electro-magnetism, constant motion.
SAVINE.	High excitement, with acute pain in stomach and bowels, nausea, and vomiting, convulsions, and in pregnant females abortion.	Emetics, copious dilutions with barley-water, sedatives, emollients, paregoric.
SILVER, Nitrate of. Lunar Caustic.	Pains in stomach and abdomen, constriction and burning in throat, salivation, vomiting of bloody matter, diarrhœa, *breathing greatly embarrassed.*	Strong solution of common salt which converts it into chloride of silver, emetics, strict antiphlogistic treatment.
TIN, Salts of.	Vomiting, acute pain in the stomach, anxiety, restlessness, thirst, frequent, hard and small pulse, increasing symptoms of violent irritation, delirium.	Free vomiting, use of the stomach-pump. Whites of eggs, or milk in large quantities.

POISONS.	SYMPTOMS.	ANTIDOTES.
Zinc, Sulphate of.	Quickened pulse, pale and shrunken features, cold extremities. Death rarely follows, on account of the severe vomiting induced in the first instance.	Milk decomposes the poison, and should be administered in large quantities.

Burns and Scalds.

The only difference between a burn and a scald is that the first is the result of a dry heat and the second of moist heat.

Burns and scalds are of very common occurrence, and occasion a very large amount of suffering. Many accidents of this sort might be avoided by proper care. As Dr. Hope says: The number of children who die from these causes is dreadful; but when we consider the love of playing with fire common to all children, the absurd and dangerous fashion of having the dress swelled out with crinoline when cooking or doing anything near a fire, the careless manner in which lucifer matches are carried loose in pockets and dropped on to floors, or the way in which hot liquids are placed in the way of children, the wonder is that they do not happen more frequently.

Putting Out the Fire.—Take this case, a description of what is unfortunately happening every day: A woman's clothes take fire; she is wrapped in flames; her arms and hands, her neck and face, are scorched with the heat; her hair is in a blaze; the smoke is

suffocating her. She becomes utterly confused, and rushes to and fro, so creating a current of air which increases the fire. The best thing she could have done would have been instantly to roll upon the floor. But how few would have presence of mind to do this! The more need for a friend to do it for her. Seize her by the hand, or by some part of the dress which is not burning, and throw her on the ground. Slip off a coat or shawl, a bit of carpet, anything you can snatch up quickly, hold this before you, clasp her tightly with it, which will protect your hands. As quickly as possible fetch plenty of water; make everything thoroughly wet, for though the flame is out, there is still the hot cinder and the half-burnt clothing eating into the flesh; carry her carefully into a warm room, lay her on a table or on a carpet on the floor—*not the bed*—give her some warm stimulating drink, send for the doctor, and proceed to the next operation—

Removing the Clothes.—Perhaps in the whole course of accidents there is not one which requires so much care and gentleness as this. We want only three people in the room—one on each side of the patient, and one to wait upon them. Oh, for a good pair of scissors or a really sharp knife! What misery you will inflict upon the sufferer by *sawing* through strings, etc., with a rough-edged, blunt knife! There must be no dragging or pulling off; do not let the hope of saving anything influence you. Let everything be so completely cut loose that it will fall off; but if any

part stick to the body, let it remain, and be careful not to burst any blisters.

THE TREATMENT

Of burns and scalds varies with the degree of the injury done.

When the skin is not blistered nor broken, but merely reddened, the best application is *creasote-water* (to be obtained of the druggist, made by adding two drops of the oil of creasote to the ounce of water), to be sponged over the part. It gives relief to the pain at once.

If the skin be blistered or destroyed by the heat, a mixture of linseed oil and lime-water upon a piece of old linen, covered with a piece of flannel and secured by means of a bandage, is an old and approved method of treatment.

A poultice of scraped potato-apple or turnip makes a pleasant application when the burn is not very severe.

Carded cotton is an excellent American remedy.

Prof. Gross, the distinguished Professor of Surgery in the Jefferson Medical College, has strongly recommended ordinary white-lead paint as a most useful application in all cases. He says of it: "From its great efficacy, and the readiness with which it can usually be employed, this mode of treatment deserves to come into more general use. It is not applicable merely to the milder forms of burns and scalds, but it may often be advantageously used, no matter what

may be the extent or depth of the injury. As the lead of the shops is very stiff, and, consequently, unfit for use, my invariable plan is to incorporate with it a sufficient quantity of linseed oil to make it of the consistence of thick cream. Thus prepared, the affected surface is thickly and thoroughly coated with it by means of a large camel-hair pencil, a soft mop, or a small paint-brush. If vesicles exist, their contents are evacuated with a fine needle, and the parts are well dried; otherwise the lead will not adhere. The dressing is completed by covering the painted surface with a layer of carded cotton, or a piece of old muslin or linen, supported by a moderately firm roller. In mild cases, one application of this kind, allowed to remain on four or five days, will usually suffice to effect a cure. In the more severe forms of the lesion, on the contrary, a considerable number may be required. Whenever the dressings become stiff or saturated with secretions, they should be removed, others being immediately substituted.

"I have never witnessed any bad effects from white-lead paint, applied as here stated, although I have used it very freely in quite a number of cases. In one instance, that of a negro girl, sixteen years of age, who had a most severe and extensive burn of the neck, chest, and abdomen, I maintained the application upwards of five weeks, consuming more than a quart of the lead, without observing the slightest injury. In short, my experience induces me to believe that the treatment is perfectly safe in all cases, whatever may be the extent or depth of the lesion, or the age

of the patient. Where a counter-poison, however, is deemed necessary, it will be readily found in the occasional exhibition of a dose of sulphate of magnesia, which, while it keeps the bowels in a soluble state, combines with the lead, forming an inert sulphate.

"White-lead paint probably produces its good effects in two ways: first, by forming a varnish to the affected surface; and, secondly, by directly obtunding its nervous sensibility. In many cases it acts literally like a charm; the patient, in a few moments, becoming perfectly calm, and passing, as it were, from torment into Elysium."

Subnitrate of bismuth, rubbed up in a mortar with glycerine so as to make a thick paint, and spread over the parts, which are afterwards covered with carded cotton, confined by a roller bandage, is a soothing application.

Railroad and other Injuries.

Dr. John H. Packard has prepared an admirable series of short rules for the course to be followed by bystanders in case of railroad injury, when surgical assistance cannot be at once obtained. These rules should find a place in every depot, foundry, and workshop in the country.

The dangers to be feared in these cases are: *Shock or collapse, loss of blood, and unnecessary suffering in the moving of the patient.*

I. SHOCK.

IN SHOCK the injured person lies pale, faint, cold, sometimes insensible, with labored pulse and breathing.

Apply external warmth, by wrapping him up (not merely covering him over) in blankets, quilts, or extra clothes. Bottles of hot water, hot bricks (not too hot), may also be wrapped up in cloths and put to the armpits, along the sides, and between the feet if they are uninjured.

If the patient has NOT been drinking, give brandy or whiskey, in *tablespoonful* doses every 15 or 20 minutes—less frequently as he gets better. Food (strong soup is the best) should also be given now and then.

II. LOSS OF BLOOD.

If the patient is NOT bleeding, *do not* apply any constriction to the limb, but cover the wounded part lightly with the softest rags to be had (linen is the best).

If there is bleeding, do not try to stop it by binding up the wound. *The current of blood to the part must be checked.* To do this, find the artery, by its beating; lay a firm and even compress or pad (made of cloth or rags rolled up, or a round stone or piece of wood well wrapped) OVER THE ARTERY (see Fig. 1); tie a handkerchief around the limb and compress; put a bit of stick through the handkerchief and twist the

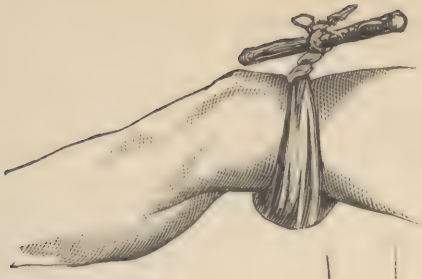

Fig. 1.

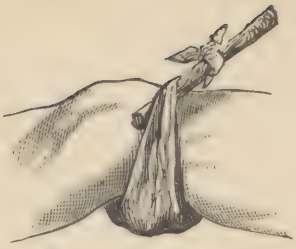

Fig. 2.

Fig. 4.

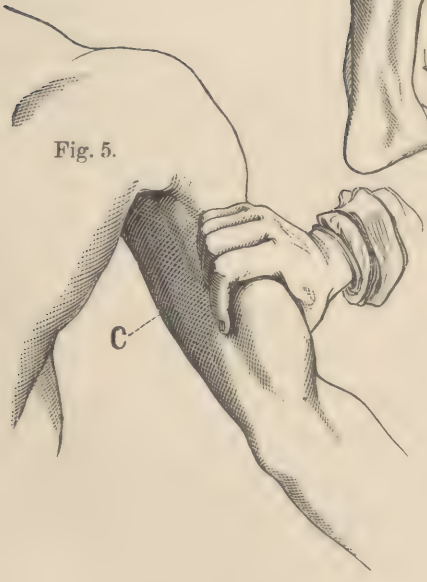

Fig. 5.

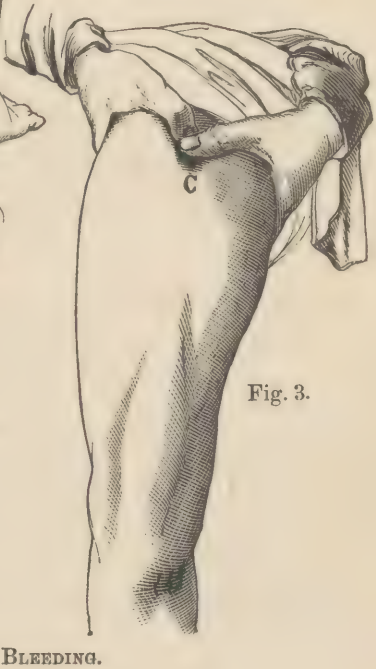

Fig. 3.

latter up until it is *just tight enough to stop the bleeding;* then put one end of the stick under the handkerchief, to prevent untwisting (as in Fig. 2).

The artery in the thigh runs along the inner side of the muscles in front, near the bone. A little above the knee it passes to the back of the bone. In injuries at or above the knee, apply the compress high up, on the inner side of the thigh, at the point where the two thumbs meet at C, in Fig. 3, with the knot on the outer side of the thigh. When the leg is injured below the knee, apply the compress at the back of the thigh, just above the knee at C, in Fig. 4, and the knot in front, as in Figs. 1 and 2.

The artery in the arms runs down the inner side of the large muscle in front, quite close to the bone; low down it gets further forward toward the bend of the elbow. It is most easily found and compressed a little above the middle. (See Fig. 5.)

Care should be taken to examine the limb from time to time, and to lessen the compression if it becomes very cold or purple; tighten up the handkerchief again if the bleeding begins afresh.

III. TO TRANSPORT A WOUNDED PERSON COMFORTABLY.

Make a soft and even bed for the injured part, of straw, folded blankets, quilts, or pillows laid on a board, with side-pieces of board nailed on, where this can be done. If possible, let the patient be laid on a door, shutter, settee, or some firm support, properly

covered. Have sufficient force to lift him steadily, and let those who bear him NOT keep step.

Bleeding at the Nose.

The application of cold to the nape of the neck, and over the bridge of the nose, will usually stop the bleeding. A large bladder filled with ice may be used over the back of the neck, and a lump of ice wrapped in flannel over the nose. Hot foot-baths are also sometimes useful.

In mild cases, the closing of the bleeding nostril with the fingers of the opposite side, and the holding upright of the arm of the bleeding side, will check the flow of blood.

The injection up the nostrils of a solution of alum and water will act as an astringent. The insertion of a piece of ice into the affected nostril, or the holding of it against the roof of the mouth, is a useful and easy method of treatment.

To check *bleeding from the lungs*, see the directions given on page 932.

Foreign Bodies.

Foreign substances of many kinds may enter the eyes, nose, throat, ears, etc., and, remaining there, cause serious trouble.

THINGS IN THE EYE.

The most convenient plan when bits of cinder, or similar bodies, get in the eye, is to shut the eye, pass a bodkin under the lid, press gently upon it with your finger, and, pushing outwards against the lid with the bodkin, sweep the little nuisance into the inner corner of the eye, whence it can readily be lifted with the corner of a handkerchief. The head of a smooth pin, or any similar article, will serve as well as a bodkin.

Simply lifting the upper lid away from the eyeball, by taking hold of the eyelashes, and drawing it down over the lower lid, will often suffice.

THINGS IN THE NOSE AND EAR.

If in the nose, take a pair of small pliers, put the points in the nostril, and open them gently across the face; at the same time put the finger above the substance, and press it down where the pliers can close upon it. A pinch of snuff will often cause the substance to be expelled with a sneeze.

Syringing with warm water is the only *safe* way to remove things from the ear. If that fails, consult a doctor. In case it is an insect of some kind, fill the ear at once with *oil*, which will promptly kill the intruder.

FOREIGN BODIES IN THE THROAT.

Anything remaining in the throat causes *choking* and distressing cough.

When a person chokes, give him a smart slap between the shoulders; this will often cause him to eject the substance from his mouth. A teaspoonful of mustard and water will often cause him to vomit, and thus throw it up. Do not delay too long, however, to call in the aid of a surgeon. if one is obtainable.

Bruises.

The discoloration of the skin which follows a blow or fall is often more disagreeable than the pain immediately felt. This can be avoided by a simple treatment. After receiving a violent blow or fall, likely to be followed by such a consequence, the treatment is to apply at once a lotion of whiskey, alcohol, or some other strong liquor, constantly to the part. This will not only relieve the pain and soreness, but, if immediately and steadily applied, will do away with all tendency to the "black and blue" appearance which is so annoying.

Fainting.

The very common accident of a person fainting may arise from a variety of causes, but the proper treatment in all cases is the same.

The patient should at once be laid flat upon the

back, the head *not elevated* but on a level with the body; the clothing should be loosened, especially around the neck and chest; fresh air should be allowed free access to the face, a fan being used if at hand; and cold water should be sprinkled with some force upon the face and throat. The crowd which often collects should be requested to depart, and if a close room has produced the attack, the sufferer should be taken to the open air.

APPENDIX.

(See page 771.)

FORMULÆ.

℞. Pulv. opii. gr. ¼.
Pot. bromid. gr. x.
Pulv. aromat. gr. xij.
M.

℞. Pulv. cat. comp. (Dub.)

℞. Pulv. rhei gr. ij.
Pulv. podophyl. extr. gr. ¼.
Sod. et pot. tart. ʒij.
M.

℞. Hydrarg. sulph. flav. gr. v.

℞. Ammon. muriat.
Pulv. rad. seneg. āā gr. x.
Pulv. acac.
Pulv. glycyrrhiz. āā gr. xij.
M.

℞. Ammon. carb.
Zingib. pulv. āā gr. xij.
M.

℞. Ferri sulph. granulat. gr. iij.
Pulv. aloes Socot. gr. j.
Pulv. calumb.
Pulv. cinnamom. āā gr. v.
M.

℞. Pulv. ipecac comp.
Pulv. potas. nit.
Pulv. aromat. āā gr. v.
M.

℞. Potass. acetat. gr. x.
Pulv. fol. uvæ ursi. gr. xxx.
M.

℞. Chinoidiæ gr. xv.

℞. Santonin. gr. iij.
Pulv. aromat. gr. x.
M.

℞. Acid. carbolic. puris. gr. v.
Adipis *vel* cer. simp. ʒss.
Ol. geran. gtt. iij.
M.

℞. Sulph. præcip. ʒj.
Potass. nitrat. ℈ij.
M.

℞. Pot. iodid. gr. x.
Ammon. muriat. gr. v.
Pulv. zingib. gr. x.
M.

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